Series 1960, No. 12

Issued December 1964

SOIL SURVEY

Baldwin County Alabama

OUR SOIL ✱ OUR STRENGTH

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
In cooperation with
ALABAMA DEPARTMENT OF AGRICULTURE AND INDUSTRIES
AND
ALABAMA AGRICULTURAL EXPERIMENT STATION

HOW TO USE THE SOIL SURVEY REPORT

THIS SOIL SURVEY of Baldwin County will serve several groups of readers. It will help farmers in planning the kind of management that will protect their soils and provide good yields; assist engineers in selecting sites for roads, buildings, ponds, and other structures; aid foresters in managing woodland; and add to our knowledge of soil science.

Locating soils

Use the index to map sheets at the back of this report to locate areas on the large map. The index is a small map of the county on which numbered rectangles have been drawn to show where each sheet of the large map is located. When the correct sheet of the large map has been found, it will be seen that boundaries of the soils are outlined, and that there is a symbol for each kind of soil. All areas marked with the same symbol are the same kind of soil, wherever they occur on the map. The symbol is inside the area if there is enough room; otherwise, it is outside the area and a pointer shows where the symbol belongs.

Finding information

This report contains sections that will interest different groups of readers, as well as some sections that may be of interest to all.

Farmers and those who work with farmers can learn about the soils in the section "Descriptions of Soils" and then turn to the section "Use and Management of the Soils." In this way, they first identify the soils on their farm and then learn how these soils can be managed and what yields can be expected. The "Guide to Mapping Units, Capability Units, Woodland Suitability Groups, and Range Sites" at the back of the report will simplify use of the map and report. This guide lists each soil and land type mapped in the county, and the page where each is described. It also lists, for each soil and land type, the capability unit, woodland suitability group, and range site and the pages where each of these is described.

Foresters and others interested in woodland can refer to the section "Use and Management of Woodland." In that section the soils in the county are grouped according to their suitability for trees, and factors affecting the management of woodland are explained.

Engineers will want to refer to the section "Use of Soils for Roads, Foundations, and Earthworks." Tables in that section show characteristics of the soils that affect engineering.

Scientists and others who are interested will find information about how the soils were formed and how they were classified in the section "Formation and Classification of Soils."

Students, teachers, and other users will find information about soils and their management in various parts of the report, depending on their particular interest.

Newcomers in Baldwin County will be especially interested in the section "General Soil Map," where broad patterns of soils are described. They may also be interested in the section "General Nature of the County," which gives additional information about the county.

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Fieldwork for this survey was completed in 1960. Unless otherwise indicated, all statements in the report refer to conditions in the county at that time. The soil survey of Baldwin County was made as part of the technical assistance furnished by the Soil Conservation Service to the Baldwin County Soil Conservation District.

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Contents

Series 1960, No. 12 Issued December 1964

SOIL SURVEY OF BALDWIN COUNTY, ALABAMA

BY E. H. McBRIDE AND L. H. BURGESS, SOIL CONSERVATION SERVICE[1]

FIELD SURVEY BY E. H. McBRIDE, E. M. DUFFEE, J. E. BOMAN, O. D. FINCHER, J. H. HATAWAY, D. M. HARRIS, JR., C. F. LYLE, W. B. PARKER, S. D. CLEMMONS, AND C. W. MARTIN, SOIL CONSERVATION SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE IN COOPERATION WITH THE ALABAMA DEPARTMENT OF AGRICULTURE AND INDUSTRIES AND THE ALABAMA AGRICULTURAL EXPERIMENT STATION

BALDWIN COUNTY has a mild, humid climate that is well suited to agriculture. The county is in the southwestern part of Alabama (fig. 1). Except for an area 17 miles long, adjacent to Escambia County, it is entirely surrounded by water. The Gulf of Mexico forms its southern boundary, and the Mobile, Tensaw, Middle, Perdido, and Little Rivers form its other boundaries. The county is the largest in the State. It has a land area of 1,613 square miles, or 1,032,320 acres, and a water area of 35,840 acres. Bay Minette, the county seat, is in the north-central part of the county.

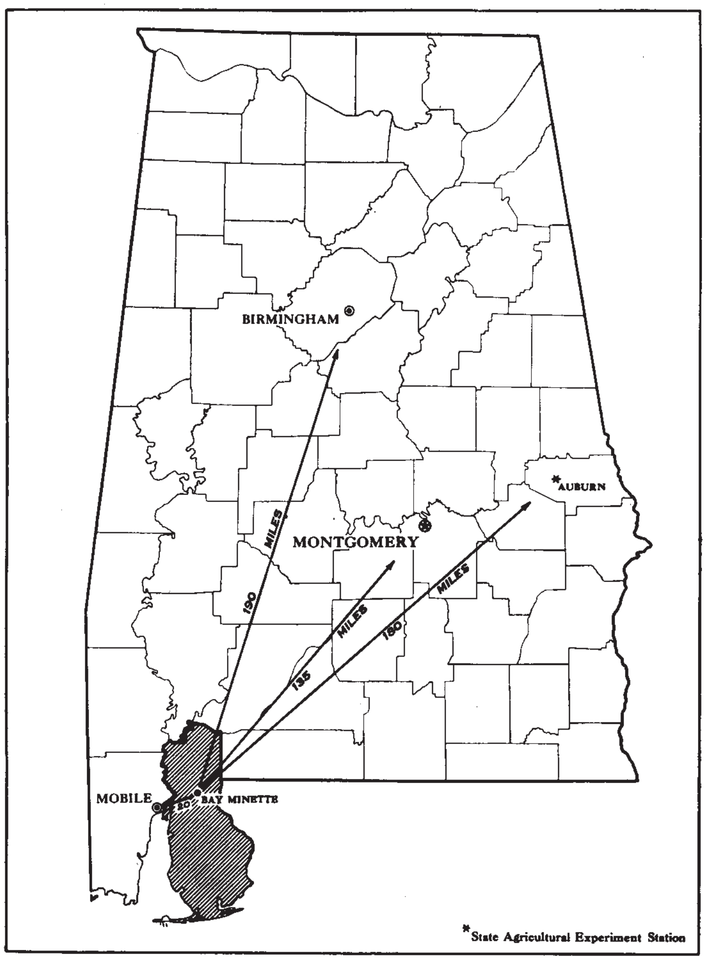

Figure 1.—**Location of Baldwin County in Alabama.**

Corn, cotton, and Irish potatoes and other truck crops have always been grown extensively in the county, and, more recently, soybeans have been grown on a large acreage. In addition, timber products have always been an important source of income. Beef cattle and dairy cattle are the principal kinds of livestock raised in the county, but some hogs are raised on commercial farms. Poultry is also raised on many of the general farms and on a number of poultry farms.

Most of the soils in the county have a sandy surface layer, which allows plant nutrients to leach out rapidly. Most of them are strongly acid or very strongly acid and contain little organic matter. The soils generally respond well, however, when fertilizer and lime are added, and they are suited to a number of different crops.

General Nature of the County

This section was prepared for those not familiar with Baldwin County. Discussed are the physiography and geology of the area, the climate, the social and industrial development, and the agriculture. The agricultural statistics used are from records of the U.S. Bureau of the Census.

Physiography and Geology[2]

Baldwin County is a part of the Gulf Coastal Plain physiographic region known as the Lower Coastal Plain. The county is underlain by five different kinds of deposits or geologic formations, which are shown in figure 2.

The areas designated as 1 on the physiographic map are underlain by sediments of Recent or of Pleistocene age. The sediments consist mainly of silt and clay washed from a number of different kinds of soils from areas farther north. They were carried to their present location and were deposited on nearly level to undulating river flood plains and terraces by the waters of the Tom-

[1] Others who contributed are listed in various sections of the report.

[2] ADAMS, G. I., BUTTS, C., STEPHENSON, L. W., AND COOKE, W. GEOLOGY OF ALABAMA. Ala. Geol. Survey. Spec. Rept. 14, 312 pp., illus. 1926.

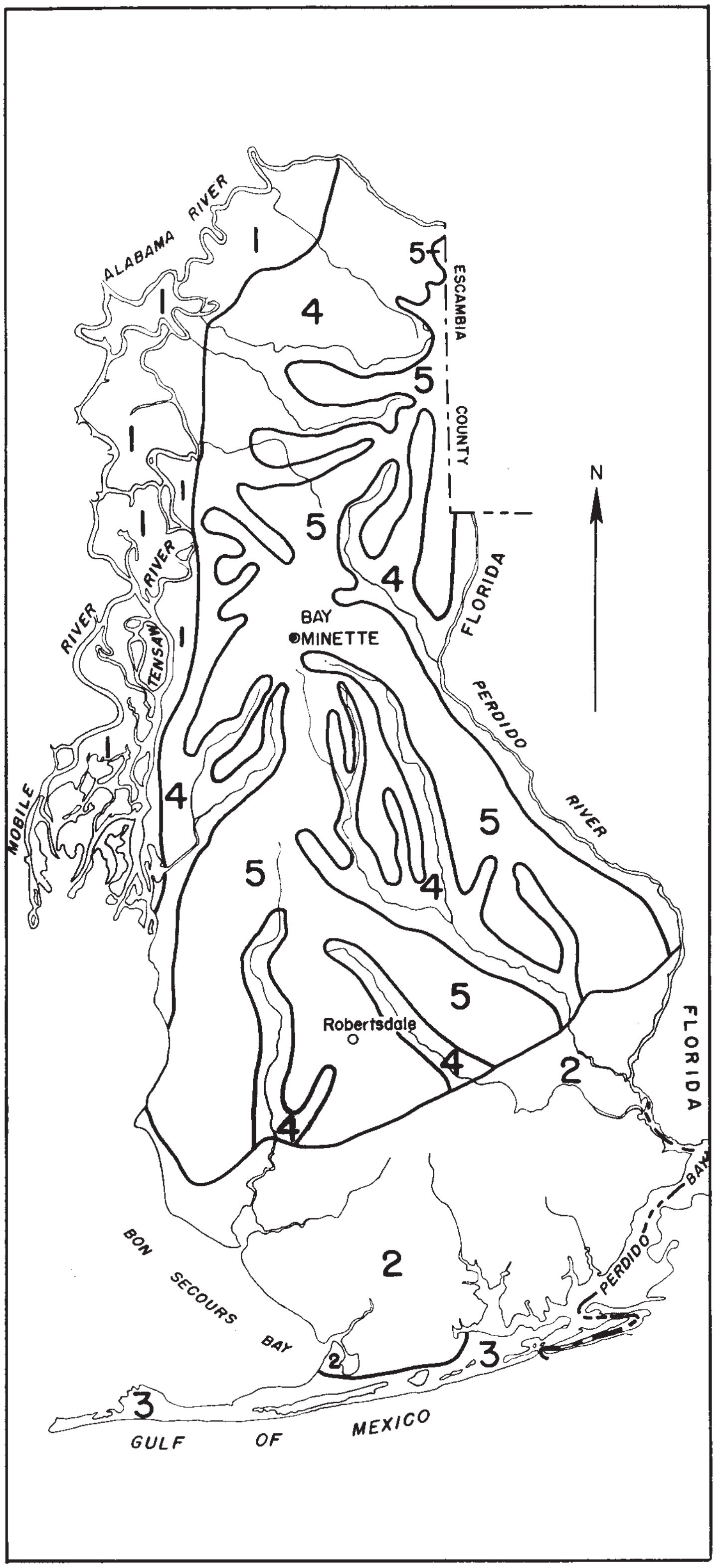

Figure 2.—**Physiographic areas of Baldwin County.**

1. **River flood plains and terraces.**
2. **Marine terraces.**
3. **Areas of Coastal beaches.**
4. **Areas underlain by Hattiesburg clay.**
5. **Plateaus and ridgetops underlain by the Citronelle formation.**

bigbee and Alabama Rivers. The flood plains are at an elevation ranging from near sea level to 20 feet above sea level. The terraces are at an elevation of 10 to 20 feet.

Area 2 is underlain by deposits on marine terraces. These deposits consist of marine sands and clays of Pleistocene age. They overlie the Citronelle formation in a strip about 15 miles wide along the coast. This area is nearly level to gently sloping and is at an elevation that ranges from 10 to 100 feet above sea level.

Area 3 consists of nearly level or gently sloping areas of Coastal beaches along the Gulf of Mexico. The deposits in this area consist of white and yellow sand of Recent age. The elevation in the area ranges from near sea level to a height of 20 feet.

Area 4 is underlain by Hattiesburg clay, which is exposed along the streams in the county. The Hattiesburg clay consists mainly of white, pink, or purple clay and sand of Miocene age. The most hilly soils in the county are in this area, and the elevation in the area ranges from 50 to about 300 feet about sea level.

Area 5 is underlain by the Citronelle formation, which is of Pliocene age. It is made up of the plateaus and ridgetops of the county. The Citronelle formation underlies a large part of the county, and rests on the Hattiesburg clay and on older formations. The material in the Citronelle formation is predominantly sandy, but it contains thin layers of clay. The sand is generally red and crossbedded. The clay is mottled gray and purple, red, or yellow, but the color varies according to the degree of weathering.

The thickness of the Citronelle formation ranges from only a thin veneer to as much as 200 feet. The original surface of the Citronelle formation formed a series of plains that sloped gently toward the gulf, but the formation has been so altered by erosion that only a few of these plains remain. Now, the areas in most places are nearly level to sloping. The northern part of the area underlain by the Citronelle formation is at an elevation of 200 to 300 feet above sea level. The elevation of the southern part is 100 to 200 feet above sea level.

Climate

Baldwin County has a humid, nearly subtropical climate. There are no dry seasons. The summers are long and fairly hot, but the heat is tempered by breezes from the gulf. The nights are generally pleasant. The highest temperature recorded in summer at Bay Minette, the county seat, is 103° F., although a temperature of 106° was once recorded in September. The lowest is 53°. Table 1 gives figures for temperatures and precipitation at Bay Minette. These figures are compiled from records kept by the U.S. Weather Bureau. They are considered typical of the temperature and precipitation throughout the county.

The winters are short and mild, but there are occasional short periods of subfreezing temperatures that are accompanied by killing frost. These periods usually occur in January or in the first part of February. The highest temperature recorded in winter at Bay Minette is 85°, and the lowest is 10°. Based on a 25-year record, the frost-free period at Daphne, on Mobile Bay, is 262 days. The average frost-free period extends from March 5 to November 22.

TABLE 1.—*Temperature and precipitation at Bay Minette Station, Baldwin County, Ala.*

[Elevation, 268 feet]

Month	Temperature[1]			Precipitation[2]		
	Average	Absolute maximum	Absolute minimum	Average	Driest year (1954)	Wettest year (1929)
	°F.	°F.	°F.	Inches	Inches	Inches
January	52.9	85	11	4.53	1.06	7.19
February	55.4	84	10	5.78	1.77	11.63
March	60.1	89	18	5.62	4.10	22.74
April	66.9	94	33	5.08	1.92	3.30
May	73.3	100	37	4.67	1.87	3.13
June	79.6	103	53	5.40	6.73	11.05
July	80.5	103	54	8.40	7.01	5.03
August	80.4	101	59	6.14	1.03	2.81
September	77.4	106	45	6.50	2.32	5.81
October	69.0	94	32	4.35	2.21	6.19
November	59.7	88	19	2.90	2.55	10.14
December	53.5	84	15	5.27	3.93	4.97
Year	67.4	106	10	64.64	36.50	93.99

[1] Average temperature based on a 31-year record, through 1955; highest and lowest temperatures based on a 30-year record, through 1952.

[2] Average precipitation based on a 37-year record, through 1955; wettest and driest years based on a 41-year record, in the period 1914–1955.

In general, the climate of Baldwin County is oceanic; that is, the temperatures are modified because of the nearness to the gulf. As a result, the range between the average temperature in winter and that in summer is less than 30°. The average temperature at Bay Minette is 53.9° in winter and 80.2° in summer.

The average yearly rainfall at Bay Minette is 64.64 inches. The rainfall is well distributed throughout the year, but the smallest amount comes in fall. The amount of rain during the fall months, however, is generally adequate to germinate crops. Sometimes, dry or wet periods last long enough during the growing and harvesting seasons to injure the crops or to cause losses in harvesting them. Hurricanes late in summer and early in fall occasionally damage crops and property. Snowfall is rare.

The large amount of rainfall and high temperatures prevent a large amount of organic matter from building up in the soils. They are also favorable for insects and plant diseases, which are serious problems in producing crops and livestock. The large amount of rainfall, in addition to the coarse texture of most of the soils, causes a great deal of leaching.

Social and Industrial Development

Baldwin County was formed on December 21, 1809. Several areas have been added to the county since that time, and some areas have been combined with other counties. The county was named for Abraham Baldwin, a distinguished citizen of Georgia, in deference to the wishes of many of the early settlers who came from that State. The area now included in Baldwin County has been ruled by five different governments—Spain, France, England, the Confederacy, and the United States.

McIntosh Bluff, on the Tombigbee River, was the first county seat, but Blakely became the county seat in 1820. Later, in 1868, the county seat was moved to Daphne. Finally, in 1901, it was moved to its present location in Bay Minette.

The population of the county increased from 40,997 in 1950 to 49,088 in 1960. In 1960, Bay Minette had a population of 5,197. Other towns in the county and the population of each were Fairhope, 4,858; Foley, 2,889; Daphne, 1,530; Robertsdale, 1,467; Loxley, 828; Summerdale, 522; Silverhill, 418; Elberta, 381; and Gulf Shores, 342.

Transportation.—The county has a well-developed system of highways. In 1959, it had 1,579 miles of roads, divided by kind, as follows: 251 miles of paved State and Federal roads, about 112 miles of paved State roads, 470 miles of paved county roads, and 746 miles of unpaved county roads.

U.S. Highway No. 31 crosses the north-central part of the county and passes through Bay Minette. U.S. Highways No. 90 and No. 98 cross the southern part of the county. These two highways cross the Mobile Bay to Mobile by way of the Cochrane Bridge.

The principal State highways are 104, 42, 3, 59, and 180. County roads are built and maintained by the State Highway Department in agreement with the county authorities. Many new blacktop roads are under construction; these are county roads.

The Louisville and Nashville Railroad, the only railroad in the county, crosses the north-central part of the county and has a spur line that extends from Bay Minette to Foley. This railroad is used to ship large quantities of fresh truck crops, especially Irish potatoes, to market, although many of the farm products are shipped by truck.

Bus service is available in the larger towns. The airports at Mobile and at Pensacola, Fla., provide plane service to the county.

Water supply.—All of Baldwin County has a good supply of water. Most of the water comes from drilled wells, which are 25 to 65 feet deep. Some of the water used for irrigation comes from drilled wells, and some, from farm ponds. The farm ponds are also used for fishing and for fire control. Nearly all of the streams in the county are fed by springs or by the water from seep areas. They flow throughout the year, except in years of extreme drought.

Industry.—This county does not have a large number of industries, but the industries furnish employment for many people. There are also a number of large industries located in nearby Mobile and in Pensacola, Fla., that furnish employment. Many of the farmers in the county work part time in industry.

Sawmills and shipping sheds are located throughout the county. In addition, there are three iceplants, two milk-processing plants, and two plants where concrete products are manufactured. A plant where wood products are manufactured is located at Bay Minette, and a pole-peeling plant, a furniture factory, a basket factory, and a garment factory are also located there.

A mill where oil is extracted from soybeans is located near Foley, as well as a hybrid seed corn plant, a nylon-processing plant, and an ironworks. Fairhope has a plant where clay products are manufactured, and it also has a milk-processing plant and shipping sheds. Bon Secour has a seafood industry. In and around Robertsdale are

feedmills, a livestock auction barn, and a creosoting plant. There are no cotton gins in the county.

Community facilities.—The county has 6 senior high schools, 9 junior high schools, and 14 elementary schools, but there are no colleges. The schools had a total enrollment of 13,113 students in 1960. Schoolbuses are provided to transport the students to the consolidated schools.

Churches of many different denominations are located throughout the county, and hospitals are located at Foley, Fairhope, and Bay Minette. Bay Minette and Foley have radio stations and a weekly newspaper. A weekly newspaper is also published in Fairhope.

All communities in the county have mail service and electricity. Most of them have telephone service, and several are provided with gas service.

Recreational facilities.—This county is nearly surrounded by water, and, as a result, swimming, fishing, boating, and water skiing are popular sports. Many summer homes have been built along the Gulf of Mexico and along Mobile Bay.

Duck hunting is a favorite sport in the areas of Tidal marsh on the western side of the county. Hunting of deer, turkey, quail, and dove is popular in season, particularly in the northern part of the county, where much of the area is woodland.

Agriculture

Little is known about the type of agriculture practiced by the Indians who lived in the area that is now Baldwin County. It is assumed that they grew the crops commonly grown by the Indians, such as Indian corn, beans, pumpkins, and melons. Hunting and fishing were their principal ways of obtaining food.

The earliest white settlers, who settled mainly in the hilly, northern part of the county, practiced the same type of farming as was practiced by the Indians, but they also grew peas, potatoes, rice, and cotton. Most of the cotton that is grown in the county is still grown in the northern part.

Agriculture began to develop rapidly about 1918, particularly in the southern part of the county. Much of the acreage in old growth or in areas that had been cut over was settled by groups of Greeks, Italians, Germans, French, and Swedes, mainly from the Midwestern States. These people tried new crops, including tobacco and citrus fruits, as well as vegetables and general crops. Tobacco did not prove successful and is no longer grown. The citrus trees in large groves were killed by severe freezes. Lemons, grapefruit, and Satsuma oranges, however, are still grown successfully in home orchards.

Timber and timber products are still a source of much of the income in the county. Only 31.1 percent of the total acreage in the county, or 320,966 acres, was in farms in 1959, and, of this, 134,942 acres was in timber. The principal wood products are pulpwood, sawlogs, veneer logs, poles and piling, fence posts, and firewood.

Of the 1,830 farms in the county in 1959, 918 were miscellaneous and unclassified. The remaining farms are listed by type as follows:

Cash-grain farms	300
Field-crop farms other than cash-grain farms	91
Cotton farms	45
Vegetable farms	10
Fruit and nut farms	5
Poultry farms	105
Dairy farms	59
Livestock farms other than poultry and dairy	168
General farms	129

In 1959, there were 962 farms in the county producing primarily for cash sale. The average-sized farm was 175.4 acres, as compared to 129.4 acres in 1954.

Most of the farm operators in the county own their farms, and most of them live on the farm they operate. In 1959, 955 of the farm operators worked part time off the farm.

In 1959, there were telephones on 983 farms in the county, home freezers on 974 farms, and milking machines on 76 farms. In addition, grain combines were on 527 farms, cornpickers on 312 farms, tractors on 1,305 farms, motortrucks on 1,301 farms, and automobiles on 1,302 farms.

The principal expenditures on farms in the county were for feed for livestock, for hired labor, and for machine hire, but there were also large expenditures for fuel to carry on the farm business, for fertilizer, and for seeds, bulbs, plants, and trees. Fertilizer was used on 118,418 acres in 1959.

Field crops, fruits, and nuts.—Table 2 shows the acreage of the principal crops grown in the county in 1954 and 1959. Soybeans and corn are the field crops grown most extensively. These crops are often planted following a small grain that has been grown in winter. A rotary hoe is generally used to break the crust on newly planted fields of soybeans or corn before or shortly after the crop comes up. Preemergence sprays are also used to control the weeds in cultivated fields.

Because leaching is moderate to severe in most of the soils, it is a common practice to place some fertilizer under the crop when it is planted and to sidedress with additional fertilizer when the crop is cultivated. This practice is more common on deep, sandy soils than on other soils.

TABLE 2.—*Acreage of the principal crops*

Crops	1954	1959
	Acres	*Acres*
Corn for all purposes	31, 936	27, 997
Wheat	(1)	7, 381
Oats	6, 549	9, 592
Soybeans grown for all purposes	61, 591	74, 826
Irish potatoes	[2] 12, 149	[2] 9, 000
Cotton	2, 782	1, 343
Sweetpotatoes	[2] 690	[2] 575
All vegetables, harvested for sale	6, 606	5, 139
Watermelons	2, 466	1, 565
Sweet corn	2, 226	2, 297
Cabbage	342	241
Hay crops:		
Clover and clover-grass mixtures	663	614
Small grain cut for hay	1, 569	2, 426
Other hay	2, 199	1, 773
	Number	*Number*
Peach trees	1, 875	3, 990
Fig trees	711	1, 310
Pecan trees	62, 750	67, 240
Tung trees	18, 564	11, 311

[1] Not reported.

[2] Does not include acreage for farms that had less than 20 bushels harvested.

A common practice in this county is to plant fields that are newly cleared to watermelons, cantaloups, or cucumbers. The reason for this is that soils that have just been cleared are relatively free from diseases and weeds. Ordinarily, melons or cucumbers are grown for only 1 year, and then the soils are planted to corn, soybeans, or gladiolus, or they may be used for pasture. Some farmers replant the land to pine trees after they have grown watermelons for 1 year.

Irish potatoes are grown extensively in this county. They receive a large amount of fertilizer so that they will grow rapidly. The potatoes are generally dug before they mature. They are poorly suited to storage and are marketed as a fresh vegetable. Refrigerated railroad cars and trucks are used to transport the potatoes to market. Immediately following the potato harvest, soybeans or crops to be used for summer grazing are usually planted without applying additional fertilizer.

The climate of Baldwin County is poorly suited to peaches and apples because there are too few chilling days for fruit to be produced. The trees are likely to bloom during the warm days in January, and the blooms are killed by frost when the temperature drops later on.

Lemons, grapefruit, and Satsuma oranges are grown in small home orchards, but they are not grown commercially to any extent, because of the hazard of killing frost. Plums, figs, pears, dates, grapes, muscadines, blueberries, and strawberries are grown successfully in small home orchards and in gardens. Nursery stock and greenhouse products are grown extensively in the county and are a major source of income.

Sprinkler irrigation is used to some extent for gladiolus and nursery stock and to a lesser extent for truck crops, field crops, and pastures. Water is pumped from drilled wells for the most part, but some irrigation water is obtained by pumping it from nearby creeks.

Pecans are grown throughout the county, except on bottom lands and on the soils adjacent to the gulf and Mobile Bay. The largest commercial groves are on the most fertile soils in the lower one-third of the county. Improvement has been made in the yields of pecans by selecting better suited varieties and allowing adequate space between the trees. In groves that are newly planted, the trees are generally spaced properly and varieties that have been tested are planted. Row crops and crops that are suitable for grazing are planted between the rows of trees in young groves. If deep-rooted crops are grown in summer, however, they compete with the trees for moisture. In the older producing groves, crops that can be grazed in winter are planted a short time before the nuts begin to fall. Disking in crop residues under the trees makes it easier to gather the nuts.

There are several groves of tung trees in the county. On the well-drained soils, the trees produce good yields. The acreage varies, however, because of variations in the demand for tung oil and variations in prices.

Coastal bermudagrass and bahiagrass are the most important crops from which hay is made. Some small grains, mixtures of small grains and winter legumes, and soybeans are cut for hay. Most of the hay is baled and stored for use in winter. As a rule, alfalfa, clover, and peanut hay are brought into the county to supplement the hay that is produced locally. Alfalfa and sericea lespedeza do not grow well in this county, because of the large amount of rainfall, competition from grass, and the extensive leaching in the soils. A large acreage is pastured.

TABLE 3.—*Kinds and numbers of livestock on farms*

Livestock	1954	1959
	Number	*Number*
Cattle and calves	47, 608	39, 516
Milk cows	6, 437	5, 745
Hogs and pigs	15, 794	18, 242
Sheep and lambs	3, 648	2, 530
Chickens [1]	206, 408	196, 777

[1] More than 4 months old.

Livestock and livestock products.—Nearly a third of the income derived from the sale of farm products in 1959 was derived from the sale of livestock and livestock products. Table 3 shows the kinds and numbers of livestock in the county in 1954 and 1959.

How Soils Are Named, Mapped, and Classified

Soil scientists made this survey to learn what kinds of soils are in Baldwin County, where they are located, and how they can be used.

They went into the county knowing they likely would find many soils they had already seen, and perhaps some they had not. As they traveled over the county, they observed steepness, length and shape of slopes; size and speed of streams; kinds of native plants or crops; kinds of rock; and many facts about the soils. They dug or bored many holes to expose soil profiles. A profile is the sequence of natural layers, or horizons, in a soil; it extends from the surface down to the material that has not been changed much by leaching or by the roots of plants.

The soil scientists made comparisons among the profiles they studied, and they compared these profiles with those in counties nearby and in places more distant. They classified and named the soils according to uniform procedures. To use this report efficiently, it is necessary to know the kinds of groupings most used in a local soil classification.

Soils that have profiles almost alike make up a soil series. Except for different texture in the surface layer, all the soils of one series have major horizons that are similar in thickness, arrangement, and other important characteristics. Each soil series is named for a town or other geographic feature near the place where a soil of that series was first observed and mapped. Orangeburg and Ruston, for example, are the names of two soil series. All the soils in the United States having the same series name are essentially alike in natural characteristics.

A soil series contains soils that are alike except for the texture of their surface layer. According to this difference in texture, separations called soil types are made. Within a series, all the soils having a surface layer of the same texture belong to one soil type. For example, Orangeburg fine sandy loam is a soil type in the Orangeburg series. Thus, the texture of the surface layer is apparent from the name of the soil type.

Some soil types vary so much in slope, degree of erosion, number and size of stones, or some other feature affecting their use, that practical suggestions about their management could not be made if they were shown on the soil map as one unit. Such soil types are divided into soil phases. The name of a soil phase indicates a feature that affects management. For example, Ruston fine sandy loam, 2 to 5 percent slopes, is one of several phases of Ruston fine sandy loam, a soil type that ranges from nearly level to strongly sloping.

After a fairly detailed guide for classifying and naming the soils had been worked out, the soil scientists drew soil boundaries on aerial photographs. They used photographs for their base map because they show woodlands, buildings, field borders, trees, and similar details that greatly help in drawing boundaries accurately. The soil map in the back of this report was prepared from the aerial photographs.

The areas shown on a soil map are called mapping units. On most maps detailed enough to be useful in planning management of farms and fields, a mapping unit is nearly equivalent to a soil type or a phase of a soil type. It is not exactly equivalent, because it is not practical to show on such a map all the small, scattered bits of soil of some other kind that have been seen within an area that is dominantly of a recognized soil type or soil phase.

In preparing some detailed maps, the soil scientist has a problem of delineating areas where different kinds of soils are so intricately mixed, and so small in size, that it is not practical to show them separately on the map. Therefore, he shows this mixture of soils as one mapping unit and calls it a soil complex. Ordinarily, a soil complex is named for the major soil series in it, for example, St. Lucie-Leon-Muck complex. Also, in most mapping, there are areas to be shown that are so rocky, so shallow, or so frequently worked by wind and water that they cannot be called soils. These areas are shown on a soil map like other mapping units, but they are given descriptive names, such as Gullied land or Swamp, and are called land types rather than soils.

Only part of the soil survey was done when the soil scientist had named and described the soil series and mapping units, and had shown the location of the mapping units on the soil map. The mass of detailed information he had recorded then needed to be presented in different ways for different groups of users, among them farmers, managers of woodlands and rangelands, and engineers.

To do this efficiently, he had to consult with persons in other fields of work and jointly prepare with them groupings that would be of practical value to different users. Such groupings are the capability classes, subclasses, and units, designed primarily for those interested in producing the short-lived crops and tame pasture; range sites, for those using large tracts of native grass; woodland suitability groups, for those who need to manage wooded tracts; and the classifications used by engineers who build highways or structures to conserve soil and water.

General Soil Map

After study of the soils in a locality and the way they are arranged, it is possible to make a general map that shows several main patterns of soils, called soil associations. Such a map is the colored general soil map in the back of this report. Each association, as a rule, contains a few major soils and several minor soils, in a pattern that is characteristic, although not strictly uniform.

The soils within any one association are likely to differ from each other in some or in many properties; for example, slope, depth, stoniness, or natural drainage. Thus, the general soil map shows, not the kind of soil at any particular place, but several distinct patterns of soils. Each pattern contains several different kinds of soils.

Each soil association is named for the major soil series in it, but, as already noted, soils of other series may also be present. The major soils of one soil association may also be present in another association, but in a different pattern.

The general map, showing patterns of soils, is useful to people who want a general idea of the soils, who want to compare different parts of a county, or who want to know the possible location of good-sized areas suitable for a certain kind of farming or other land use.

Only two of the associations in the county are used extensively for agriculture. Most of the others are made up largely of areas that are wooded. Association 6, however, consists of areas of Tidal marsh, and association 9, of soils that are used mostly for recreation. The nine associations, or general soil areas, are described in the following pages.

1. Wet Clayey Alluvial Land-Iuka-Mantachie Association

Deep and moderately deep, poorly drained to moderately well drained soils on flood plains of rivers

This association, or general soil area, consists of soil on the broad flood plains of the Mobile, Alabama, and Tensaw Rivers. It is in the western and northwestern parts of the county. Its areas are cut by many old river channels and by present-day streams and small lakes. In some places the soils developed in alluvium carried by the Alabama and Tombigbee Rivers from many areas in the upper part of the State. In other places they developed in alluvium carried by creeks that drain onto bottoms along the larger streams. The association makes up about 10 percent of the acreage in the county.

Wet clayey alluvial land occupies about 45 percent of this association. It consists of poorly drained land in slack-water areas of the flood plains. The areas of this land type are the first to be flooded, and water remains in the sloughs for long periods of time. The upper part of the soil material is grayish-brown to dark-gray silt loam or silty clay loam. Below it is mottled, dark grayish-brown to mottled, gray silty clay to clay.

The Iuka soil, on low ridges along streams, occupies about 14 percent of the association. The surface layer of this soil is dark-brown silt loam. The soil material below the surface layer is dark yellowish-brown silty clay that is mottled with gray and yellowish brown.

The Mantachie soil, which is at a slightly higher elevation than Wet clayey alluvial land, occupies about 22 percent of the association. This soil is moderately deep and is somewhat poorly drained. The surface layer is faintly mottled and is dark grayish-brown silt loam to silty clay loam. It is underlain by mottled, gray soil material.

Swamp and Riverwash occupy a small part of the association, and water occupies approximately 20,000 acres.

Swamp consists of areas that are permanently wet, and Riverwash consists of deposits of sand along streams, particularly in the bends and curves.

There are many deer and turkeys within the boundaries of this association, and wild hogs and bear are in the more remote areas. The rivers and lakes are excellent for fishing. Large tracts of land, owned by individuals or by corporations, are a source of lumber and of other wood products. Except for the operators of fishing camps, the association is uninhabited.

The soils that make up this association are among the most fertile in the county, but they are limited by the hazard of flooding. They cannot be used more intensively for agriculture until they are drained and protected from flooding.

Most of this association is in hardwoods, and the rest of the acreage is used for pasture. The soils in the areas used for pasture are generally in capability subclass IIw, and those in the wooded areas are in subclasses IVw, Vw, and VIIw. Riverwash is in subclass VIIIs.

2. Flint-Wahee-Leaf Association

Moderately deep and deep, moderately well drained to poorly drained, nearly level or very gently sloping soils of terraces

This soil association consists of soils on stream terraces that border the flood plains of streams in the northwestern part of the county. The soils developed in old alluvium washed by the Alabama and Tombigbee Rivers from areas in other parts of the State. They are dominantly moderately well drained to poorly drained, but a small acreage of well drained soils is included. The association makes up 3 percent of the total acreage in the county.

Flint, Wahee, and Leaf silt loams, mapped together as an undifferentiated mapping unit on the detailed soil map, occupy about 30 percent of this association. These soils are also mapped separately in areas large enough to be shown on the map.

The Flint soil, mapped separately, occupies about 12 percent of the association. It is moderately deep and moderately well drained. The surface layer of this soil is very dark gray silt loam, and its subsoil is yellowish-red silty clay. The substratum is mottled clay.

The Wahee soils, mapped separately, occupy about 17 percent of the association. They are less well drained than the Flint soil. Their surface layer is very dark grayish-brown silt loam, and their subsoil is mottled, yellowish silty clay or silty clay loam.

The lower lying areas in the association are occupied by the Leaf soil, which is more poorly drained than the Flint and Wahee soils. The Leaf soil, mapped separately, occupies about 5 percent of the association. It has a surface layer of dark grayish-brown silt loam and a subsoil of mottled silty clay.

Minor soils in this association are the Myatt, Cahaba, Kalmia, and Izagora. The Myatt soil is sandier throughout than the Leaf soil, and it is poorly drained. The Cahaba and Kalmia soils are well drained, but the Cahaba soil has a subsoil of yellowish-red, friable sandy clay loam, and the Kalmia soils have a subsoil of yellow to yellowish-brown, friable sandy clay loam. The Izagora soils are similar to the Kalmia soils, but their substratum contains more clay.

676-830—64——2

Most of this association is rather thinly populated. The small acreage of cultivated land and pasture is farmed by tenant farmers. The farmers work mainly in timber, but they produce part of their food on the farm. The soils in the association have a high potential for agricultural use and are well suited to the use of farm machinery. They cannot be used more intensively for agriculture, however, until some of the areas are drained.

A large part of this association is in pines and scattered hardwoods, and a much smaller acreage is in pasture or in cultivated crops. Nearly all of the soils in the cultivated areas are in capability class I or in subclass IIe, and those in the areas used for pasture are in subclasses IIw and IIIw. The soils in the wooded areas are in subclasses IIIw and IVw.

3. Bowie-Lakeland-Cuthbert Association

Shallow to deep, moderately well drained to excessively drained, nearly level to moderately steep soils of uplands

This soil association consists of highly dissected areas that border the flood plains of rivers. It extends from the west-central part of the county through the northern part (fig. 3). The association consists of deep, nearly level to gently sloping soils on narrow ridgetops; of variable soils on the sloping to moderately steep side slopes; and of narrow areas of poorly drained, alluvial soils of the bottom lands. In some places the soils of this association developed in unconsolidated Coastal Plain material. In other places they developed in alluvium washed from soils that developed in Coastal Plain material. The association makes up about 21 percent of the acreage in the county.

The Bowie, Lakeland, and Cuthbert soils, mapped together as an undifferentiated mapping unit, occupy about 30 percent of the association, but the Bowie soils that are mapped separately occupy only a small part of the acreage. The Bowie soils have a surface layer of grayish-brown to very dark gray fine sandy loam and a subsoil of yellowish-brown to strong-brown sandy clay loam.

The Lakeland soils, mapped separately, occupy about 20 percent of the association. They have a surface layer of grayish-brown to dark grayish-brown loamy fine sand

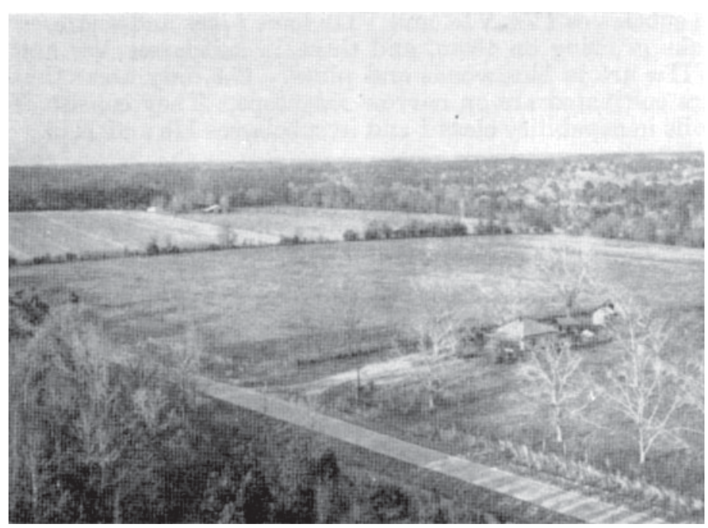

Figure 3.—**A landscape that is typical of much of the upper two-thirds of Baldwin County.**

and a subsoil of brownish-yellow to dark yellowish-brown loamy sand.

The Cuthbert soils that are mapped separately occupy only a small part of this association. They are also mapped with the Bowie and Sunsweet soils in one undifferentiated soil group and with the Bowie and Lakeland soils in another. The Cuthbert soils have a surface layer of dark grayish-brown or brown to dark-gray fine sandy loam. Their subsoil is yellowish-brown to strong-brown sandy clay or silty clay.

The Cuthbert and Sunsweet soils are somewhat similar, but the Cuthbert soils lack the many iron concretions and fragments of sandstone cemented with iron that are common in the Sunsweet soils. The Cuthbert, Bowie, Lakeland, and Sunsweet soils within this association are all sloping to moderately steep.

Minor soils in this association are the Norfolk, Tifton, Carnegie, Marlboro, Ruston, and Eustis. Most of these soils are nearly level to gently sloping, but the Eustis soils have stronger slopes than the other soils. All of these soils except the Eustis are well drained and friable. The Eustis soils are excessively drained.

In addition to the minor soils named, Gullied land occupies a small acreage in this association, and Wet loamy alluvial land and Hyde and Bayboro soils and Muck also occupy small acreages. All except Gullied land are poorly drained or very poorly drained and are subject to frequent flooding. All of them are wet because they receive seepage water.

Large tracts of woodland within this association are owned by individuals or by corporations. Most of the farms where row crops are grown are small. They are generally operated by the owner; many of the operators are part-time farmers.

A large acreage within the association is probably best suited to trees. In these areas the woodlands are well managed. Large areas that are thinly wooded are being cleared, disked, and replanted to slash pine. The main crops grown on the areas that are farmed are corn, cotton, and grasses and legumes for pasture.

The steeper soils of this association are in capability subclasses IVs, VIe, and VIIe, and the soils on the bottom lands are in capability subclasses Vw and VIIw. The soils in subclasses IVs, VIe, and VIIe have pines and scattered oaks growing on them, and those in subclasses Vw and VIIw are in hardwoods and pines. The only areas that are cultivated are on narrow ridgetops. They consist of soils in capability class I and in subclasses IIe and IIIs.

4. Marlboro-Faceville-Greenville Association

Deep, moderately well drained and well drained, nearly level to gently sloping soils of uplands

This association consists mainly of wide areas of well-drained soils that are nearly level or very gently sloping. It also includes areas of moderately well drained soils and some areas of gently sloping soils. The association is in three areas. The largest is in the south-central and southwestern parts of the county. A smaller area is near Bay Minette, and a third small area is in the northeastern part of the county near Lottie. The soils in this association developed in unconsolidated Coastal Plain material. The association makes up about 18 percent of the total acreage in the county. The largest areas used for farming are within its boundaries.

The Marlboro soils occupy about 20 percent of the association. Their surface layer is very dark gray to brown very fine sandy loam, and their subsoil is yellowish-brown fine sandy clay loam.

The Faceville soils occupy about 12 percent of the association. Their surface layer is generally dark grayish-brown fine sandy loam, and their subsoil is yellowish-red loam.

The Greenville soils occupy about 9 percent of the association. Their surface layer is dark-brown to dark reddish-brown loam, and their subsoil is generally dark-red sandy clay loam.

Minor soils in the association are the Carnegie and Tifton, which are similar to the Marlboro, Faceville, and Greenville soils in texture and drainage. Other minor soils that are also well drained, but that contain more sand than the major soils, are the Orangeburg, Red Bay, Ruston, and Norfolk. Still other minor soils are the moderately well drained Irvington and Savannah soils, the somewhat poorly drained Robertsdale soil, and the poorly drained Grady soils and Wet loamy alluvial land. In addition, there are small areas of well drained to moderately well drained Local alluvial land and a small acreage of soils in mines and pits and in the runways of airports.

The soils in this association are highly developed for agriculture, and a large volume of agricultural products comes from the areas. The farms are well equipped, and farm operations are highly mechanized. Corn, soybeans, Irish potatoes, small grains, and truck crops are grown and are sold as cash crops. A large part of the cotton produced in the county is grown in the part of the association near Lottie. In the areas near Bay Minette, Fairhope, Robertsdale, and Loxley, there are many farms where dairy cattle and beef cattle are raised. Most of the farms are operated full time by the owner.

About three-fourths of this association is in cultivated crops, and the rest is in pasture or is wooded. The soils that are cultivated are principally in capability class I or in subclasses IIw and IIe. The soils used for pasture are in subclasses IIIe and IIIw, and those that are wooded are in subclasses IVe and Vw.

A large acreage in the more nearly level areas of this association has been cleared and is used for row crops and pasture. The soils in the newly cleared areas are mainly in capability classes II and III, but some soils in class IV are being cleared. Nearly all of the cleared areas have been terraced to protect the soils from erosion.

5. Bowie-Tifton-Sunsweet Association

Shallow to deep, dominantly well-drained or excessively drained, nearly level to moderately steep soils of uplands

This soil association consists mainly of very gently sloping to sloping soils, but it includes small areas of nearly level, sloping, strongly sloping, and moderately steep soils. The slopes are generally short and irregular. The association is in the central and east-central parts of the county and consists of soils developed in unconsolidated Coastal Plain material. The soils are generally less deep than the soils in the Marlboro-Faceville-Green-

ville and the Norfolk-Klej-Goldsboro associations. This association makes up 16 percent of the total acreage in the county.

The Bowie, Tifton, and Sunsweet soils are mainly gently sloping or sloping. The Bowie soils, mapped separately, occupy about 13 percent of this association. They have a surface layer of very dark gray fine sandy loam and a subsoil of yellowish-brown sandy clay loam.

The Tifton soils occupy about 12 percent of the association. Their surface layer is generally dark grayish-brown very fine sandy loam. They have a subsoil of yellowish-brown sandy clay loam, and there are iron concretions throughout the solum.

The Sunsweet soils, mapped separately, occupy 13 percent of the association. They have a surface layer of very dark grayish-brown fine sandy loam and a subsoil of yellowish-red sandy clay. The Sunsweet soils have concretions throughout the profile.

Cuthbert, Bowie, and Sunsweet soils, mapped together as an undifferentiated mapping unit, occupy a fairly large acreage in the association. The thin solum phases of the Bowie soils make up another fairly large acreage.

Carnegie, Ruston, and Norfolk soils, Wet loamy alluvial land, and Hyde and Bayboro soils and Muck make up a minor part of this association. The Carnegie soils are similar to the Tifton, but their subsoil is yellowish red. The Ruston and Norfolk soils are deep and very sandy, and they have more sand throughout the profile than the other soils in the association. Wet loamy alluvial land, on bottom lands, is poorly drained, and Hyde and Bayboro soils and Muck are very poorly drained.

Part of this association is in large, wooded tracts owned by individual owners and corporations. Part consists of open areas that are used for cultivated crops and pasture. The association probably has the largest acreage potentially suitable for row crops in the county. The type of ownership, however, has influenced the use of the land in the area more than in any of the other associations.

The farms in the association are general farms. Corn and cotton are the principal crops. Most of the farm operators are part-time farmers; they work in industry to supplement their income. The areas that are farmed are fairly thickly settled, but the rest of the association is thinly populated.

A large part of this association is wooded, and a much smaller acreage is in cultivated crops and pasture. The areas used for cultivated crops and pasture are in capability class I and in subclasses IIe, IIIe, and IIIs. The woodland is in all classes and subclasses, from class I through subclass VIIw. This association has a larger acreage of wooded soils in class I and in subclasses IIe and IIIe than other associations in the county.

6. Tidal Marsh Association

Very poorly drained marshland

This association consists of areas of fresh-water and salt-water tidal marsh. The areas are at the lower end of the river flood plain, at the head of Mobile Bay. The association is the smallest in the county, and it makes up only 3 percent of the total acreage.

Tidal marsh occupies 96 percent of this association. It consists of gray heavy clay or silty clay that has streaks and mottles of yellow and brown. The land generally supports no trees, but there are a few willows and a dense cover of marsh cane, marsh grass, and rushes.

Made land occupies the remaining 4 percent of the association. This land type consists of soil material that has been pumped from the bays and rivers to form islands and building sites.

This association is used only for range, wildlife, and recreation. The few permanent residents are owners and operators of fishing camps. The land types in the association have no potential for row crops, nor are they suitable for improved pasture unless they are reclaimed.

7. Lakeland-Plummer Association

Deep, somewhat excessively drained to very poorly drained, nearly level soils of bottom lands and nearly level to moderately steep soils of uplands

This association consists of nearly level, poorly drained to very poorly drained soils of bottom lands and of gently sloping to moderately steep, somewhat excessively drained loamy fine sands of the uplands. The areas are along creeks and rivers in the southern and eastern parts of the county. In some places the soils in this association developed in unconsolidated Coastal Plain material. In other places they developed in alluvium washed from soils formed in Coastal Plain material. This association makes up 17 percent of the acreage in the county.

The Lakeland soils occupy about 34 percent of the association. They are deep and excessively drained and are nearly level to sloping. The Lakeland soils have yellowish-brown loamy fine sand throughout most of the profile.

The Plummer soils occupy 15 percent of the association. They consist of poorly drained, gray loamy sand that is nearly level to very gently sloping. The Plummer soils are adjacent to Hyde and Bayboro soils and Muck.

Hyde and Bayboro soils and Muck, mapped together as an undifferentiated mapping unit, occupy a fairly large acreage in the association. The soils in this mapping unit are generally high in organic matter and are on first bottoms along streams. Other minor soils in the association are the Eustis, Rains, Kalmia, Izagora, Okenee, and Myatt, and a small acreage is occupied by Wet loamy alluvial land and by Sandy alluvial land.

The Eustis soils are similar to the Lakeland soils, but their subsoil is yellowish red rather than yellowish brown. The Rains soils are similar to the Plummer soils, but they are finer textured throughout the profile.

The Kalmia, Izagora, Okenee, and Myatt soils occupy a small acreage in this association and are on terraces along streams. The Kalmia soils are well drained, the Izagora soils are moderately well drained, and the Okenee and Myatt soils are very poorly drained. Wet loamy alluvial land and Sandy alluvial land are on first bottoms along streams.

A large acreage in this association is probably best suited to pines, and large, wooded tracts are owned by individual owners and by corporations. If the large acreage of Plummer and Rains soils were drained, these soils could be used more extensively for growing trees and pasture crops. Little of the acreage has potential for row crops.

Much of the association is wooded, but about one-tenth of it is used to grow cultivated crops, and a small acreage is in pasture. In the wooded areas on the uplands, the trees are mainly pines, but there are some scattered hardwoods. In the wooded areas on the bottoms, the trees are mainly hardwoods, but there are some pines. The soils in trees are in capability subclasses IVs, VIs, VIIs, Vw, and VIIw. The part of the association that is used for cultivated crops is in small farms where the operators are part-time farmers and most of the products are grown for home use. The soils that are cultivated are in subclasses IIe and IIIs.

8. Norfolk-Klej-Goldsboro Association

Deep, moderately well drained and well drained, nearly level to gently sloping soils of uplands

This association consists of dominantly nearly level or very gently sloping soils of uplands and of soils of the associated bottom lands. It is in the southern and southeastern parts of the county near Foley and Elberta. In some places the soils developed in unconsolidated Coastal Plain material. In other places they developed in alluvium that washed from soils formed in Coastal Plain material. The dominant soils in this association are generally more sandy than those in association 4. The association makes up about 7 percent of the acreage in the county.

The Norfolk, Klej, and Goldsboro soils occupy the broad, nearly level or very gently sloping areas in the association. The Norfolk soils occupy about 3 percent of the acreage. They are well drained and have a surface layer of dark grayish-brown fine sandy loam. Their subsoil is yellowish-brown heavy fine sandy loam.

The Klej soils occupy about 17 percent of the association. They are moderately well drained and have a surface layer of dark grayish-brown loamy fine sand. Their subsoil is mottled, light yellowish-brown loamy fine sand.

The Goldsboro soils occupy about 15 percent of the association. They are moderately well drained and have a surface layer of very dark grayish-brown fine sandy loam. Their subsoil is olive-yellow to yellowish-brown, faintly mottled fine sandy loam.

Minor areas in the association are occupied by the Lynchburg, Scranton, Ruston, and Grady soils, and there is also a small acreage of Bibb and Mantachie soils, mapped together as an undifferentiated mapping unit. Another small acreage is occupied by Hyde and Bayboro soils and Muck and by Wet loamy alluvial land.

The Lynchburg soils have a texture similar to that of the Goldsboro soils, but they are less well drained than the Goldsboro soils. The Scranton soils have a texture similar to that of the Klej soils, but they are less well drained than the Klej soils. The Ruston soils have a texture similar to that of the Norfolk soils, but their subsoil is yellowish red rather than yellowish brown.

The Grady soils occupy only a very small acreage in the association. They are in depressions in the uplands and are poorly drained. The Bibb and Mantachie soils and Wet loamy alluvial land are on bottoms along streams, and they are somewhat poorly drained or poorly drained. The Hyde and Bayboro soils and Muck are also on bottoms along streams, but they are very poorly drained.

This association is the second most important agricultural area in the county. It is highly developed for agriculture, and farming operations are highly mechanized. The association is rather thickly populated. Most of the farms are small or are of medium size, and they are operated by the owner. Grain and truck crops are the main crops grown on many of the farms, but there are a number of poultry farms and of livestock farms where beef cattle are raised. There are also a few dairy farms, and some farmers specialize in growing gladiolus for flowers and bulbs. Most of the farm operators are part-time farmers who have jobs in industry to supplement their income.

About three-fourths of this association is used for cultivated crops, and there is a fairly large acreage in pasture or in trees. The soils used for cultivated crops are mainly in capability class I and in subclasses IIe and IIw. The ones used for pasture are in subclasses IIIe, IIIw, and IVw. The soils that are wooded are mainly in subclasses Vw and VIIw, but there is a small acreage of soils in classes I, II, III, and IV. In this association there is only a small acreage of soils in classes VI or VII. Nearly all of the soils that have potential for growing row crops are in subclasses IIw and IIIw. These soils require some drainage to be well suited to row crops.

9. Lakewood-St. Lucie-Leon Association

Moderately deep and deep, poorly drained to excessively drained soils that border salt-water and fresh-water lakes

This association consists of soils on low sand dunes and in the low, wet areas between the dunes. It also includes the soils of the beaches along the Gulf of Mexico. The association extends along the southern side of the county and borders the Gulf of Mexico and Bon Secours Bay. It makes up about 5 percent of the total acreage in the county.

Lakewood sand occupies 13 percent of this association. It is deep and excessively drained. St. Lucie sand, mapped separately, occupies an additional 8 percent. It, too, is deep and excessively drained. Leon sand, mapped separately, makes up 13 percent of the association. It is poorly drained and has a hard layer cemented with organic material.

The St. Lucie-Leon-Muck complex occupies 10 percent of the association. It consists of areas so intricately mixed that it is impractical to show them separately on a map. The areas of Muck consist of an accumulation of 18 to 36 inches of decomposed organic matter that overlies clay. Water occupies more than two-fifths of the association, and Coastal beaches occupies a fairly large acreage.

This association is used mainly for recreation, but the better drained areas are used as sites for summer homes and cottages. The population varies with the season. There is a large population in summer and a small one in winter.

The soils of this association have little or no value for agriculture. The vegetation growing on the dunes con-

sists of sand pine, oak, palmetto, cactus, and seaoats. The wetter areas are in slash pine, loblolly pine, gallberry, myrtle, and titi.

Descriptions of Soils

This section is provided for those who want detailed information about the soils in the county. It describes the individual soils, or mapping units; that is, the areas on the detailed soil map that are bounded by lines and are identified by a symbol. For more general information about the soils, the reader can refer to the section "General Soil Map," in which the broad patterns of soils are described. The approximate acreage and proportionate extent of each soil mapped in the county are given in table 4. Their location is shown on the soil map at the back of the report.

In the descriptions that follow, each soil series is first described, and then the soils in the series. The series description mentions features that apply to all of the soils it contains.

As a general rule, only one soil profile is described in detail for each series, and that profile is described under the first mapping unit of the series. The profile described is considered to be representative for all the soils in the series. The descriptions of the other soils in the series generally tell how their profiles differ from the one given as representative of the series.

TABLE 4.—*Approximate acreage and proportionate extent of the soils*

Soil	Area	Extent
	Acres	*Percent*
Bibb and Mantachie soils, local alluvium	6,072	0.6
Bowie fine sandy loam, 2 to 5 percent slopes	14,515	1.4
Bowie, fine sandy loam, 2 to 5 percent slopes, eroded	265	[1]
Bowie fine sandy loam, 5 to 8 percent slopes	7,436	.7
Bowie fine sandy loam, 8 to 12 percent slopes	1,028	.1
Bowie fine sandy loam, thin solum, 2 to 5 percent slopes	5,016	.5
Bowie fine sandy loam, thin solum, 5 to 8 percent slopes	2,639	.2
Bowie, Lakeland, and Cuthbert soils, 5 to 8 percent slopes	7,277	.7
Bowie, Lakeland, and Cuthbert soils, 8 to 12 percent slopes	48,434	4.5
Bowie, Lakeland, and Cuthbert soils, 8 to 12 percent slopes, eroded	3,554	.3
Bowie, Lakeland, and Cuthbert soils, 12 to 25 percent slopes, eroded	23,876	2.2
Cahaba fine sandy loam, 2 to 5 percent slopes	949	.1
Carnegie very fine sandy loam, 2 to 5 percent slopes	7,739	.7
Carnegie very fine sandy loam, 0 to 2 percent slopes	1,853	.2
Carnegie very fine sandy loam, 2 to 5 percent slopes, eroded	2,761	.3
Carnegie very fine sandy loam, 5 to 8 percent slopes	2,774	.3
Carnegie very fine sandy loam, 5 to 8 percent slopes, eroded	2,543	.2
Carnegie very fine sandy loam, 8 to 12 percent slopes	651	.1
Carnegie very fine sandy loam, 8 to 12 percent slopes, eroded	520	[1]
Coastal beaches	4,811	.4
Cuthbert fine sandy loam, 5 to 8 percent slopes	4,270	.4
Cuthbert fine sandy loam, 2 to 5 percent slopes	4,128	.4
Cuthbert fine sandy loam, 8 to 12 percent slopes	1,296	.1
Cuthbert fine sandy loam, 12 to 17 percent slopes	453	[1]
Cuthbert, Bowie, and Sunsweet soils, 5 to 8 percent slopes	873	.1
Cuthbert, Bowie, and Sunsweet soils, 8 to 12 percent slopes	18,577	1.7
Cuthbert, Bowie, and Sunsweet soils, 12 to 17 percent slopes, eroded	12,472	1.2
Eustis loamy fine sand, 0 to 5 percent slopes	29,576	2.8
Eustis loamy fine sand, 5 to 8 percent slopes	7,491	.7
Eustis loamy fine sand, 8 to 12 percent slopes	2,002	.2
Faceville fine sandy loam, 0 to 2 percent slopes	10,382	1.0
Faceville fine sandy loam, 2 to 5 percent slopes	5,051	.5
Faceville fine sandy loam, 2 to 5 percent slopes, eroded	918	.1
Faceville fine sandy loam, 5 to 8 percent slopes	923	.1
Faceville fine sandy loam, 5 to 8 percent slopes, eroded	365	[1]
Flint silt loam, 2 to 5 percent slopes	2,007	.2
Flint, Wahee, and Leaf silt loams, 0 to 5 percent slopes	4,999	.5
Goldsboro fine sandy loam, 0 to 2 percent slopes	11,254	1.0
Goldsboro fine sandy loam, 2 to 5 percent slopes	7,033	.7
Goldsboro fine sandy loam, 5 to 8 percent slopes	2,336	.2
Grady soils	10,688	1.0
Greenville loam, 0 to 2 percent slopes	8,892	.8
Greenville loam, 2 to 5 percent slopes	622	.1
Greenville loam, 2 to 5 percent slopes, eroded	321	[1]
Greenville loam, 5 to 8 percent slopes, eroded	299	[1]
Gullied land	149	[1]
Hyde and Bayboro soils and Muck	71,630	7.0
Irvington loam, 0 to 2 percent slopes	6,034	.6
Irvington loam, 2 to 5 percent slopes	786	.1
Iuka silt loam	16,758	1.6
Izagora very fine sandy loam, 2 to 5 percent slopes	2,230	.2
Izagora very fine sandy loam, 0 to 2 percent slopes	1,585	.1
Kalmia fine sandy loam, 0 to 2 percent slopes	999	.1
Kalmia fine sandy loam, 2 to 5 percent slopes	1,143	.1
Klej loamy fine sand, 0 to 5 percent slopes	21,715	2.0
Klej loamy fine sand, 5 to 8 percent slopes	1,139	.1
Lakeland loamy fine sand, 0 to 5 percent slopes	92,170	8.6
Lakeland loamy fine sand, 5 to 8 percent slopes	29,658	2.8
Lakeland loamy fine sand, 8 to 12 percent slopes	8,575	.8
Lakeland loamy fine sand, 12 to 17 percent slopes	632	.1
Lakewood sand, 0 to 5 percent slopes	4,558	.4
Leaf silt loam	775	.1
Leon sand	4,564	.4
Local alluvial land	4,285	.4
Lynchburg fine sandy loam, 0 to 2 percent slopes	6,079	.6
Lynchburg fine sandy loam, 2 to 5 percent slopes	3,928	.4

See footnote at end of table.

TABLE 4.—*Approximate acreage and proportionate extent of the soils*—Continued

Soil	Area	Extent	Soil	Area	Extent
	Acres	*Percent*		*Acres*	*Percent*
Lynchburg fine sandy loam, 5 to 8 percent slopes	1,050	0.1	Ruston fine sandy loam, 2 to 5 percent slopes	15,084	1.4
Made land	1,051	.1	Ruston fine sandy loam, 0 to 2 percent slopes	7,917	.7
Magnolia fine sandy loam, 0 to 2 percent slopes	3,780	.4	Ruston fine sandy loam, 2 to 5 percent slopes, eroded	1,089	.1
Magnolia fine sandy loam, 2 to 5 percent slopes	995	.1	Ruston fine sandy loam, 5 to 8 percent slopes	4,213	.4
Magnolia fine sandy loam, 2 to 5 percent slopes, eroded	508	(1)	Ruston fine sandy loam, 5 to 8 percent slopes, eroded	619	.1
Magnolia fine sandy loam, 5 to 8 percent slopes, eroded	400	(1)	Ruston fine sandy loam, 8 to 12 percent slopes	793	.1
Mantachie silt loam	26,988	2.5	Sandy alluvial land	3,335	.3
Marlboro very fine sandy loam, 0 to 2 percent slopes	29,898	2.8	Savannah very fine sandy loam, 0 to 2 percent slopes	3,076	.3
Marlboro very fine sandy loam, 2 to 5 percent slopes	3,669	.3	Scranton loamy fine sand, 0 to 2 percent slopes	9,118	.9
Marlboro very fine sandy loam, 2 to 5 percent slopes, eroded	498	(1)	Scranton loamy fine sand, 2 to 5 percent slopes	4,895	.5
Myatt very fine sandy loam	11,509	1.1	St. Lucie sand, 0 to 5 percent slopes	2,709	.2
Norfolk fine sandy loam, 2 to 5 percent slopes	22,747	2.1	St. Lucie-Leon-Muck complex	3,403	.3
Norfolk fine sandy loam, 0 to 2 percent slopes	21,005	2.0	Sunsweet fine sandy loam, 5 to 8 percent slopes, eroded	8,517	.8
Norfolk fine sandy loam, 2 to 5 percent slopes, eroded	686	.1	Sunsweet fine sandy loam, 2 to 5 percent slopes, eroded	5,898	.5
Norfolk fine sandy loam, 5 to 8 percent slopes	4,118	.4	Sunsweet fine sandy loam, 8 to 17 percent slopes, eroded	7,816	.7
Okenee soils	1,548	.1	Swamp	2,224	.2
Orangeburg fine sandy loam, 0 to 2 percent slopes	4,138	.4	Tidal marsh	24,011	2.2
Orangeburg fine sandy loam, 2 to 5 percent slopes	2,794	.3	Tifton very fine sandy loam, 0 to 2 percent slopes	9,027	.8
Orangeburg fine sandy loam, 2 to 5 percent slopes, eroded	355	(1)	Tifton very fine sandy loam, 2 to 5 percent slopes	13,216	1.2
Orangeburg fine sandy loam, 5 to 8 percent slopes	1,105	.1	Tifton very fine sandy loam, 2 to 5 percent slopes, eroded	2,600	.2
Orangeburg fine sandy loam, 8 to 12 percent slopes, eroded	864	.1	Tifton very fine sandy loam, 5 to 8 percent slopes	2,079	.2
Plummer loamy sand, 0 to 5 percent slopes	35,533	3.3	Tifton very fine sandy loam, 5 to 8 percent slopes, eroded	979	.1
Plummer loamy sand, 5 to 12 percent slopes	1,805	.2	Wahee silt loam, 0 to 2 percent slopes	1,180	.1
Rains fine sandy loam, 0 to 2 percent slopes	15,203	1.4	Wahee silt loam, 2 to 5 percent slopes	1,622	.1
Rains fine sandy loam, 2 to 5 percent slopes	16,797	1.6	Wet clayey alluvial land	54,415	5.1
Rains fine sandy loam, 5 to 8 percent slopes	944	.1	Wet loamy alluvial land	46,030	4.3
Red Bay fine sandy loam, 0 to 2 percent slopes	7,647	.7	Total soils	1,032,109	96.6
Red Bay fine sandy loam, 2 to 5 percent slopes	1,920	.2	Airport runways	17	(1)
Riverwash	167	(1)	Mines and pits	194	(1)
Robertsdale loam	5,189	.5	Water	35,840	3.4
			Total	1,068,160	100.0

[1] Less than 0.1 percent.

The slope ranges, included in the names of many of the soils, are described by the following terms:

0 to 2 percent slopes	Nearly level.
2 to 5 percent slopes	Very gently sloping.
5 to 8 percent slopes	Gently sloping.
8 to 12 percent slopes	Sloping.
12 to 17 percent slopes	Strongly sloping.
More than 17 percent slopes	Moderately steep.

The depth of the soil, which is described for many of the soils, refers to the depth of soil material that can be penetrated readily by plant roots and that supplies nutrients and moisture for plants to use. In this report the terms used to describe the depths and their equivalent in inches are the following: Deep, 36 inches or more; moderately deep, 20 to 36 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

In describing the profile, a letter symbol, for example, "A_1", was assigned to each of the various horizons, or layers. These letter symbols have a special meaning for soil scientists and others who make a special study of the soils. Most readers will need to remember only that all of the letter symbols beginning with "A" are surface layer; those beginning with "B" are subsoil; those beginning with "C" are substratum, or parent material; and those beginning with "D" are nonconforming material.

The color of each horizon is described in words, such as yellowish brown, but it can also be indicated by symbols for the hue, value, and chroma, such as 10YR 5/4. These symbols, called Munsell color notations, are used by soil scientists to evaluate the color of the soil precisely. For the profiles described, the names of the colors and the color symbols are given for moist soil, unless stated otherwise.

The amount of erosion was also considered in naming and mapping the soils. In this county most of the soils were placed in one of three erosion classes. Soils that have lost less than 25 percent of their original surface layer are said to have no significant erosion; the word "eroded" is not in the name of such soils. The word

"eroded" is a part of the name of soils that have lost 25 to 75 percent of their original surface layer through erosion, and there are a few shallow gullies in these. In areas where there are many moderately deep and deep gullies and the soil profile has been destroyed, except for small areas between the gullies, the soil material is called Gullied land.

Some of the terms used to describe the soils are defined in the section "How Soils Are Named, Mapped, and Classified." Others are defined in the Glossary at the back of this report.

Bayboro Series

The Bayboro series consists of soils that are very poorly drained and very strongly acid. The soils are in small depressions. They developed in thick beds of clayey Coastal Plain sediments, where the level of the ground water was fluctuating but fairly high. Their slope is between 0 and 2 percent.

The Bayboro soils have a dark-colored surface layer and a lighter colored, fine-textured subsoil. Their subsoil is similar to that of the Hyde soils, but their surface layer is thinner and contains less organic matter.

The Bayboro soils are not mapped separately in this county but are mapped in an undifferentiated soil group with the Hyde soil and Muck. For a description of a typical profile of a Bayboro soil, turn to the description of Hyde and Bayboro soils and Muck, under the Hyde series.

Bibb Series

The Bibb series consists of poorly drained, nearly level to gently sloping soils formed in general and local alluvium. The alluvium was washed mainly from soils of Coastal Plain uplands. In most places the entire profile of these soils is silt loam and is somewhat mottled below a depth of 4 to 8 inches.

Except in areas that have not been plowed, these soils are low in content of organic matter. They are also very strongly acid and are low in plant nutrients. Poor drainage, the hazard of flooding, and low fertility greatly limit their productivity.

The Bibb soils are less well drained than the Mantachie soils, and their subsoil is less firm than that of the Myatt soils. They are in lower positions than the Myatt soils and are more likely to be flooded.

In Baldwin County the Bibb soils are mapped only in an undifferentiated soil group with the Mantachie soils.

Bibb and Mantachie soils, local alluvium (Bb).—Areas of this mapping unit consist of either one of these soils or of both, because mapping the two soils separately is impractical. The following is a typical profile of the Bibb silt loam in this mapping unit:

A_1—0 to 4 inches, black (5Y 2/1) silt loam; weak, medium, granular structure; friable; very strongly acid; abrupt, wavy boundary.

C_1—4 to 40 inches, dark-gray (5Y 4/1) silt loam mottled with olive yellow (5Y 6/6); massive; friable; very strongly acid.

The following is a typical profile of the Mantachie sandy loam in this mapping unit:

A—0 to 9 inches, very dark gray (10YR 3/1) sandy loam; weak, medium, granular structure; very friable; strongly acid; clear, wavy boundary. 7 to 12 inches thick.

C_1—9 to 13 inches, light yellowish-brown (10YR 6/4) sandy loam with common, medium, distinct mottles of light gray; weak, medium, subangular blocky structure; friable; very strongly acid; gradual, wavy boundary. 3 to 5 inches thick.

C_{1g}—13 to 52 inches +, light-gray (10YR 7/1) sandy loam with common, coarse, prominent mottles of yellowish brown; weak, medium, subangular blocky structure; friable; very strongly acid.

The soils of this mapping unit are flooded frequently. In most places the floodwaters remain for only short periods, but they remain in the depressions for a somewhat longer time.

Lack of drainage, the hazard of flooding, the small size of the areas, and low fertility all greatly limit the productivity of the soils and their suitability for agriculture. Practically all of the acreage is under a forest of hardwoods, but a small part is in pasture. (Capability unit IVw–11; woodland suitability group 10; Coastal Plain Bottom Lands (Canebreaks-Hardwoods) range site.)

Bowie Series

The Bowie series consists of moderately well drained, very strongly acid soils that range from moderately deep to shallow over heavy clay or sandy clay. The soils developed in sandy clay loam to clay on uplands of the Coastal Plain. Their slope ranges from 0 to 12 percent, but in most places it is between 2 and 8 percent.

The surface layer of these soils is grayish-brown or dark grayish-brown to very dark gray sandy loam or fine sandy loam. Their subsoil, a yellowish-brown to strong-brown sandy clay loam to fine sandy clay loam, is 10 to 36 inches thick. In places heavy clay or sandy clay is at a depth of 24 inches.

The Bowie soils are in the central and upper parts of the county and are associated with the Lakeland, Norfolk, and Tifton soils. They have about the same color as the Norfolk and Tifton soils, but the lower part of their B horizon is finer textured and more compact. They are finer textured throughout than the Lakeland soils.

The natural vegetation on the Bowie soils is mainly longleaf pine and loblolly pine. Scattered oaks make up the thin forest in some places.

Bowie fine sandy loam, 2 to 5 percent slopes (BoB).—This soil is moderately well drained and is very strongly acid. The following describes a profile in a moist, wooded area (NW¼SE¼ sec. 26, T. 4 S., R. 6 E.):

A_0—1 inch to 0, partly decomposed forest litter.

A_1—0 to 2 inches, very dark gray (10YR 3/1) fine sandy loam; weak, fine, crumb structure; very friable; many fine roots; strongly acid; clear, wavy boundary.

A_2—2 to 8 inches, light yellowish-brown (2.5Y 6/4) fine sandy loam stained with organic matter from layer above; weak, fine, crumb structure; very friable; many fine roots; very strongly acid; gradual, wavy boundary.

A_3—8 to 12 inches, light olive-brown (2.5Y 5/6) fine sandy loam; weak, fine, crumb structure; very friable; many fine roots; very strongly acid; gradual, wavy boundary.

B_2—12 to 23 inches, yellowish-brown (10YR 5/8) sandy clay loam; weak, fine, subangular blocky structure; friable; contains many fragments of sandstone cemented with iron; the fragments are three-eighths of an inch thick and are 3 to 6 inches in diameter; very strongly acid; gradual, wavy boundary.

B_3—23 to 36 inches, olive-yellow (2.5Y 6/6) sandy clay loam to sandy clay; many, coarse, prominent mottles of strong brown (7.5YR 5/6) and red (2.5YR 4/8); moderate, medium, subangular blocky structure; friable or firm; very strongly acid; gradual, wavy boundary.

C—36 to 77 inches +, clay mottled with red (2.5YR 4/8), gray (10YR 7/1), and yellow (10YR 8/6); strong, coarse, subangular blocky structure; firm; very strongly acid.

The surface layer of this soil is very dark gray to dark grayish brown or grayish brown, and it ranges from 6 to 15 inches in thickness. The subsoil is yellowish brown to strong brown, and its texture ranges from sandy clay loam to loam. The number of concretions in the profile ranges from few to many. The concretions range from 1/8 of an inch to 3 inches in diameter.

Mapped with this soil are a few areas that have a surface layer of sandy loam to loamy sand. Also included are areas in which the C horizon is more sandy than that in the profile described. These areas are all too small to be mapped separately.

Bowie fine sandy loam, 2 to 5 percent slopes, is low in fertility and in content of organic matter. It is strongly acid or very strongly acid. Water infiltrates slowly. Permeability is moderate in the upper part of the profile, but it is slower in the lower part. Runoff is slow, and the capacity to store available moisture is moderate to low. The soil responds fairly well to fertilizer.

Nearly all of this soil is wooded, but a small part is in field crops or pasture. Yields are moderately high under good management. (Capability unit IIe–16; woodland suitability group 5; Coastal Plain Hills range site.)

Bowie fine sandy loam, 2 to 5 percent slopes, eroded (BoB2).—This soil has a thinner, browner A horizon than Bowie fine sandy loam, 2 to 5 percent slopes. Water infiltrates more slowly, runoff is more rapid, and the hazard of erosion is greater.

The soil is suited to the same crops as Bowie fine sandy loam, 2 to 5 percent slopes, but it requires more exacting management if it is used for cultivated crops. (Capability unit IIe–16; woodland suitability group 5; Coastal Plain Hills range site.)

Bowie fine sandy loam, 5 to 8 percent slopes (BoC).—This soil has a thinner solum than Bowie fine sandy loam, 2 to 5 percent slopes, and it contains more fragments of sandstone cemented with iron. The capacity for storing available moisture is lower, runoff is more rapid, and the hazard of erosion is greater.

Mapped with this soil are a few areas that have shallow gullies. Also included are some areas where the surface layer is thin because of erosion. These areas are all too small to be mapped separately.

Bowie fine sandy loam, 5 to 8 percent slopes, is probably best suited to trees or pasture, but it can be used for cultivated crops if it is protected from erosion. Nearly all of this soil is wooded, but a small acreage is used for field crops and pasture. (Capability unit IIIe–15; woodland suitability group 5; Coastal Plain Hills range site.)

Bowie fine sandy loam, 8 to 12 percent slopes (BoD).—This soil has a solum that is only 25 to 30 inches thick, or thinner than that of Bowie fine sandy loam, 2 to 5 percent slopes. In some places platy fragments of sandstone cemented with iron are on the surface and throughout the profile. These fragments are 3 to 6 inches across.

Mapped with this soil are a few areas of eroded soil in which the surface layer is olive-yellow (2.5Y 6/6) or yellowish-brown (10YR 5/4) heavy fine sandy loam, 4 to 6 inches thick. Also included are a few areas of deep loamy sand and a small acreage where the slope is as much as 17 percent. All of these areas are too small to be mapped separately.

Bowie fine sandy loam, 8 to 12 percent slopes, has rapid runoff, and there is a serious hazard of erosion. The moisture-holding capacity is low.

This soil is better suited to timber than to pasture or field crops. None of it is cultivated. (Capability unit IVe–15; woodland suitability group 5; Coastal Plain Hills range site.)

Bowie fine sandy loam, thin solum, 2 to 5 percent slopes (BtB).—This moderately well drained soil is shallower over heavy clay or sandy clay than Bowie fine sandy loam, 2 to 5 percent slopes. The following describes a profile in a cutover, wooded area (NW¼SW¼ sec. 20, T. 4 S., R. 6 E.):

A_0—1 inch to 0, partly decayed grass and pine straw.

A_1—0 to 3 inches, very dark gray (10YR 3/1) fine sandy loam; weak, fine, crumb structure; very friable; a few iron concretions one-sixteenth of an inch in diameter; strongly acid; clear, wavy boundary.

A_2—3 to 8 inches, light olive-brown (2.5Y 5/4) fine sandy loam with some stains of organic matter; weak, fine, crumb structure; very friable; a few iron concretions one-sixteenth of an inch in diameter; many fine roots; strongly acid; clear, wavy boundary.

B_1—8 to 12 inches, olive-yellow (2.5Y 6/6) light fine sandy clay loam; weak, fine, subangular blocky structure; very friable; a few iron concretions one-sixteenth of an inch in diameter; a few fine roots; strongly acid; clear, wavy boundary.

B_2—12 to 18 inches, brownish-yellow (10YR 6/6) fine sandy clay loam or clay loam; weak to moderate, fine, subangular blocky structure; friable; a few iron concretions one-sixteenth of an inch in diameter; a few fine roots; strongly acid; gradual, wavy boundary.

B_3—18 to 23 inches, olive-yellow (2.5Y 6/6) clay loam; common, fine to medium, distinct mottles of yellowish red (5YR 4/8) and strong brown (7.5YR 5/8); weak, fine, subangular blocky structure or massive; hard when dry, friable when moist; a few iron concretions one-sixteenth of an inch in diameter; strongly acid; clear, wavy boundary.

C—23 to 35 inches +, clay that has common, fine to medium, distinct mottles of light brownish gray (2.5Y 6/2), strong brown (7.5YR 5/8), red (2.5YR 4/8), and light yellowish brown (2.5Y 6/4); massive in places, but breaks to fine, angular blocky structure; extremely hard when dry, friable to firm when moist; strongly acid.

The surface layer of this soil ranges from very dark gray (10YR 3/1) to light olive brown (2.5Y 5/4). The B_2 horizon is brownish yellow (10YR 6/6) to strong brown (7.5YR 5/6), and its texture ranges from fine sandy clay loam to clay. Depth to clay or sandy clay ranges from 10 to 24 inches within short distances. In some places, especially where the soil is eroded, there are many concretions on the surface.

Mapped with this soil are areas of a Cuthbert fine sandy loam and areas of a Bowie fine sandy loam that has a thicker solum than the typical soil. Also included are areas in which the surface layer is loamy fine sand and the subsoil is yellowish red. All of these areas are too small to be mapped separately.

Bowie fine sandy loam, thin solum, 2 to 5 percent slopes, is low in natural fertility and in content of organic matter. Water infiltrates slowly. Permeability is moderate in the upper horizons, but it is slow in the lower horizons. The soil has a low capacity for storing available moisture. The thin solum, low moisture-holding capacity, and slow permeability in the lower horizons cause the hazard of erosion to be serious.

This soil is suited to trees, pasture, and cultivated crops. Most of it is wooded, but small areas are used for crops or pasture. If the soil is used for cultivated crops, good management must be practiced. (Capability unit IIIe-15; woodland suitability group 8; Coastal Plain Hills range site.)

Bowie fine sandy loam, thin solum, 5 to 8 percent slopes (BtC).—The profile of this soil is similar to that of Bowie fine sandy loam, thin solum, 2 to 5 percent slopes, but in most places the solum is only 10 to 15 inches thick. This soil also has more rapid runoff and is more susceptible to erosion. It is low in available moisture-holding capacity.

Mapped with this soil are a few eroded areas in which the surface layer is yellowish-brown sandy clay loam. Also included are a few areas where the slope is as much as 12 percent. All of these areas are too small to be mapped separately.

Bowie fine sandy loam, thin solum, 5 to 8 percent slopes, is suited to trees and to pasture, but a cultivated crop can be grown occasionally. Nearly all of the acreage is wooded, but a small acreage is used for cultivated crops or pasture. If it is cultivated, the soil must be protected from erosion. (Capability unit IVe-15; woodland suitability group 8; Coastal Plain Hills range site.)

Bowie, Lakeland, and Cuthbert soils, 5 to 8 percent slopes (BwC).—This undifferentiated soil group consists of areas of Bowie, Lakeland, and Cuthbert soils that are so mixed it is impractical to show them separately on a map. A profile that is representative is described under each of the three series.

The soils in this undifferentiated soil group are moderately well drained to excessively drained, and they have a moderately deep or deep root zone. Their content of organic matter is low, and each soil is low in plant nutrients. The soils are strongly acid or very strongly acid. Their capacity for storing available moisture is low. Water infiltrates rapidly in the Lakeland soil, but the rate of infiltration is moderate to slow in the Bowie and Cuthbert soils. Permeability is very rapid in the Lakeland soil and slow or very slow in the Bowie and Cuthbert soils.

Mapped with these soils are areas of Norfolk and Ruston soils and a few areas that have a slope of 2 to 5 percent. Also included are patches where the soil has been cultivated and all of the surface layer has been lost through erosion. These areas are too small to be mapped separately.

The strong slope, serious hazard of erosion, low capacity for storing available moisture, and low content of plant nutrients make Bowie, Lakeland, and Cuthbert soils, 5 to 8 percent slopes, poorly suited to cultivation. If the soils are well managed, they are fairly well suited to bahiagrass. In the past some areas were cultivated, but practically all of the acreage is now in forest. (Capability unit IVe-15; woodland suitability group 7; Coastal Plain Hills range site.)

Bowie, Lakeland, and Cuthbert soils, 8 to 12 percent slopes (BwD).—These soils have more rapid runoff than Bowie, Lakeland, and Cuthbert soils, 5 to 8 percent slopes. The hazard of erosion is also greater.

Mapped with these soils are seep areas occupied by a Plummer soil. The included areas are too small to be mapped separately.

Bowie, Lakeland, and Cuthbert soils, 8 to 12 percent slopes, is probably best suited to trees. If the soils are used for pasture, deep-rooted plants, such as bahiagrass and Coastal bermudagrass, should be grown. Good management needs to be practiced to maintain a good stand of plants. Nearly all of the acreage is wooded. (Capability unit VIe-19; woodland suitability group 7; Coastal Plain Hills range site.)

Bowie, Lakeland, and Cuthbert soils, 8 to 12 percent slopes, eroded (BwD2).—These soils have much more rapid runoff than Bowie, Lakeland, and Cuthbert soils, 5 to 8 percent slopes, and the hazard of further erosion is greater. Most of the original surface layer has been lost through erosion. In places where all of the original surface layer has been lost, the present surface layer is made up of material from the former subsoil. Gullies are fairly common.

These soils are suited only to trees. If good woodland management is practiced, the hazard of erosion will decrease. All of the acreage was once used for crops, but nearly all of it is now in trees. A small acreage is idle. (Capability unit VIe-19; woodland suitability group 7; Coastal Plain Hills range site.)

Bowie, Lakeland, and Cuthbert soils, 12 to 25 percent slopes, eroded (BwF2).—These soils have very rapid runoff, and the hazard of further erosion is very great.

Mapped with these soils are small seep areas and areas that contain outcrops of rock. Also included are small areas that are severely eroded and gullied. In some places the gray or multicolored heavy clay that is interstratified with thin layers of sand, gravel, and iron crust outcrops on the slopes or is near the surface.

Bowie, Lakeland, and Cuthbert soils, 12 to 25 percent slopes, eroded, is limited in its use for tilled crops and pasture by the strong slope, low fertility, and low moisture-holding capacity of the soils. All of the acreage is wooded. (Capability unit VIIe.-19 woodland suitability group 7; Coastal Plain Hills range site.)

Cahaba Series

The Cahaba series consists of soils that are deep, well drained, and medium to very strongly acid. The soils are on terraces along streams, where they developed in alluvium consisting of sandy loam and sandy clay loam. Their slope ranges from 0 to 5 percent, but in most places it is between 2 and 5 percent.

The surface layer of these soils is grayish-brown fine sandy loam. Their subsoil is yellowish-red light sandy clay loam.

The Cahaba soils are associated with the Kalmia, Flint, Wahee, Leaf, and Myatt soils. They are somewhat similar to the Kalmia soils, but their subsoil is strong brown to red, rather than yellow to yellowish brown. They are

more sandy throughout than are the Flint, Wahee, Leaf, and Myatt soils, and they are better drained.

The natural vegetation on the Cahaba soils is mainly longleaf pine and slash pine. There are also scattered oaks, hickory trees, and sweetgums.

Cahaba fine sandy loam, 2 to 5 percent slopes (CaB).—This is the only Cahaba soil mapped in the county. Nearly all of it is on terraces in the northwestern part of the county near Dixie Landing. The following describes a profile in a moist area that has been cultivated:

- A_p—0 to 7 inches, grayish-brown (10YR 5/2) fine sandy loam; weak, fine, crumb structure; very friable; medium acid; clear, wavy boundary.
- A_3—7 to 11 inches, yellowish-red (5YR 4/6) fine sandy loam; weak, fine, crumb structure; very friable; strongly acid; diffuse, wavy boundary.
- B_1—11 to 15 inches, yellowish-red (5YR 5/6) fine sandy loam; weak, fine, subangular blocky structure; friable; strongly acid; diffuse, wavy boundary.
- B_2—15 to 31 inches, yellowish-red (5YR 5/8) sandy clay loam; moderate, medium, subangular blocky structure; friable or firm; very strongly acid; diffuse, wavy boundary.
- C_1—31 to 43 inches, red (2.5YR 5/8) sandy clay; few, fine, distinct mottles of yellow and gray; moderate, coarse, subangular blocky structure; firm; very strongly acid; diffuse, wavy boundary.
- C_2—43 to 52 inches +, yellowish-red (5YR 5/8) sandy clay loam; few, fine, faint, yellow mottles; weak, fine, subangular blocky structure; friable.

Below a depth of 15 inches, this soil contains mica. The amount of mica increases with increasing depth.

The surface layer of this soil ranges from yellowish brown to light brownish gray and dark brown. The subsoil is strong brown to yellowish red or red, and its texture ranges from fine sandy loam to sandy clay loam. The texture of the substratum is fine sandy loam to sandy clay.

Mapped with this soil are areas in which the surface layer is very fine sandy loam. These areas are too small to be mapped separately.

Cahaba fine sandy loam, 2 to 5 percent slopes, is low in natural fertility and medium in content of organic matter. It is moderate to low in available moisture-holding capacity. Permeability is moderate to slow, and infiltration is moderate. Runoff is medium, and there is a moderate hazard of erosion. This soil responds well if fertilizer and organic matter are added.

The soil is good for general farming, woodland, or pasture. About 50 percent of it is in crops, 35 percent is in trees, and the rest is in pasture. If used for cultivated crops, this soil requires moderately intensive management. (Capability unit IIe-12; woodland suitability group 5; Coastal Plain Flatwoods range site.)

Carnegie Series

The Carnegie series consists of deep, well-drained soils that are medium acid or strongly acid. The soils developed in sandy clay loam to sandy clay on uplands of the Coastal Plain. Their slope ranges from 0 to 12 percent, but in most places it is between 2 and 8 percent.

The surface layer of these soils is dark yellowish-brown, dark-brown, and very dark grayish-brown very fine sandy loam. Their subsoil ranges from yellowish-red to red sandy clay loam to clay loam. Many concretions of iron occur throughout the profile.

The Carnegie soils occupy small areas throughout the county. They are associated with the Tifton, Faceville, and Magnolia soils. The Carnegie soils have about the same kind of texture as the Tifton, Faceville, and Magnolia soils, but their B horizon is more reddish than that of the Tifton soils. The Carnegie soils have many more iron concretions, both on the surface and in the subsoil, than either the Faceville or Magnolia soils.

The natural vegetation on the Carnegie soils is longleaf pine, loblolly pine, oak, sweetgum, and dogwood.

Carnegie very fine sandy loam, 2 to 5 percent slopes (CgB).—This soil is deep and well drained. The following described a profile in a moist pasture (NW¼SW¼ sec. 5, T. 6 S., R. 4 E.):

- A_p—0 to 7 inches, dark yellowish-brown (10YR 4/4) very fine sandy loam; weak, fine, crumb structure; very friable; many iron concretions ¼ to ½ inch in diameter; medium acid; abrupt, wavy boundary.
- A_3—7 to 10 inches, yellowish-red (5YR 5/8) very fine sandy loam; weak, fine, crumb structure; very friable; many iron concretions ¼ to ½ inch in diameter; strongly acid; clear, wavy boundary.
- B_{21}—10 to 22 inches, red (2.5YR 4/8) clay loam; weak, medium, subangular blocky structure; friable; a few iron concretions ¼ to ½ inch in diameter; strongly acid; gradual, wavy boundary.
- B_{22}—22 to 33 inches, yellowish-red (5YR 4/8) clay loam; weak, medium, subangular blocky structure; friable; a few iron concretions ¼ to ½ inch in diameter; strongly acid; gradual, wavy boundary.
- B_3—33 to 40 inches, reddish-yellow (5YR 6/8) sandy clay loam; few, fine, distinct mottles of strong brown (7.5YR 5/8); weak, medium, subangular blocky structure; friable; a few iron concretions; gradual, wavy boundary.
- C—40 to 52 inches, yellow (10YR 7/6) sandy clay; few, fine, distinct mottles of yellowish brown (10YR 5/8), light gray (10YR 7/1), and yellowish red (5YR 4/8); massive; firm; a few iron concretions; strongly acid.

The A horizon ranges from dark yellowish brown (10YR 4/4) to dark brown (7.5YR 4/2). The B horizon is yellowish red (5YR 5/8) to red (2.5YR 4/8), and its texture ranges from sandy clay loam or clay loam to sandy clay. In places a thin, continuous layer of iron crust (fig. 4), one-half inch thick, separates the solum from highly mottled deposits of sandy loam and sandy clay that are below. This iron crust is exposed in some road cuts; it is nearer the surface in the steeper areas than in areas that are less sloping. The iron concretions throughout the profile range from ⅛ inch to 2 inches in diameter and from a few to many within short distances.

Mapped with this soil are small areas in which the surface layer is loam, sandy loam, or loamy sand. These areas are too small to be mapped separately.

Carnegie very fine sandy loam, 2 to 5 percent slopes, is low in fertility and contains little organic matter. It is medium to strongly acid. The soil is well drained, but water infiltrates slowly. Permeability is moderate, and runoff is slow to medium. The capacity for storing available moisture is moderate to low. This soil is fairly easy to till and to protect from erosion. It responds well to fertilizer and to additions of organic material.

This soil is suited to pasture and trees. The hazard of erosion is its greatest limitation. Nearly all of the acreage is wooded, but it can be used for cultivated crops if it is well managed. The soil also needs a good system that will dispose of excess water. (Capability unit

Figure 4.—**A layer of iron crust in Carnegie very fine sandy loam, 2 to 5 percent slopes. Sandy material is above the iron crust, and gray, mottled clay is below.**

IIe–11; woodland suitability group 5; Coastal Plain Hills range site.)

Carnegie very fine sandy loam, 0 to 2 percent slopes (CgA).—This soil has a thicker solum than Carnegie very fine sandy loam, 2 to 5 percent slopes, and it has a higher moisture-holding capacity. Runoff is slower, and the hazard of erosion is only slight.

This soil is excellent for all the crops commonly grown in the county. It has no limitations and responds well to fertilizer and to applications of organic matter. Most of the soil is cultivated; the rest is used for trees or pasture. (Capability unit I–11; woodland suitability group 5; Coastal Plain Hills range site.)

Carnegie very fine sandy loam, 2 to 5 percent slopes, eroded (CgB2).—The profile of this soil is similar to that of Carnegie very fine sandy loam, 2 to 5 percent slopes. From 25 to 75 percent of the original surface layer, however, has been lost through erosion. The present surface layer is reddish because material from the B horizon has been mixed with material from the original A horizon.

This soil has a lower moisture-holding capacity than Carnegie very fine sandy loam, 2 to 5 percent slopes, and it is a little more difficult to till. It responds well if the proper kinds and amounts of fertilizer are added.

This soil is suited to pasture and trees. Its principal limitations are the moderate slope, the degree of erosion, and the hazard of further erosion. The soil can be used for cultivated crops if it is well managed and a complete system is installed to dispose of excess water. Sod crops need to be grown about one-half of the time if the content of organic matter is to be built up. (Capability unit IIe–11; woodland suitability group 5; Coastal Plain Hills range site.)

Carnegie very fine sandy loam, 5 to 8 percent slopes (CgC).—This soil has a thinner, more variable solum than Carnegie very fine sandy loam, 2 to 5 percent slopes. Runoff is more rapid, and the hazard of erosion is moderate to severe. The soil responds well to fertilizer.

This soil is suited to pasture and trees, and nearly all of it is wooded. Its greatest limitations are the strong slope and the hazard of erosion. The soil can be used for cultivated crops if it is well managed and a complete system is installed to dispose of excess water. It needs to be kept in sod crops about two-thirds of the time. (Capability unit IIIe–11; woodland suitability group 5; Coastal Plain Hills range site.)

Carnegie very fine sandy loam, 5 to 8 percent slopes, eroded (CgC2).—This soil is more reddish and contains more clay than Carnegie very fine sandy loam, 2 to 5 percent slopes. Mottled, finer textured soil material is also nearer the surface. From 25 to 75 percent of the original surface layer has been lost through erosion, and there are a few gullies. The present surface layer is a mixture of material from the original surface layer and the upper part of the subsoil.

This soil has more rapid runoff and lower moisture-holding capacity than Carnegie very fine sandy loam, 2 to 5 percent slopes. There is also a greater hazard of erosion. This soil responds well to fertilizer.

This soil is well suited to pasture and trees. Its greatest limitations are the strong slope, the degree of erosion, and the hazard of further erosion. About half of the soil is in cultivated crops, and the rest is in pasture. The areas that are cultivated need to be managed intensively, and the soil requires a good terracing system that will dispose of excess water. Sod crops should be grown in the rotation about two-thirds of the time to add organic matter and to help protect the soil from erosion. (Capability unit IIIe–11; woodland suitability group 5; Coastal Plain Hills range site.)

Carnegie very fine sandy loam, 8 to 12 percent slopes (CgD).—This soil has a much thinner solum than Carnegie very fine sandy loam, 2 to 5 percent slopes. It occurs in small, scattered areas that border the heads of small drainageways. Runoff is rapid. In places the soil contains a greater number of iron concretions, and of fragments of sandstone cemented with iron, than are in the less sloping Carnegie soils.

Mapped with this soil are a few areas that are eroded and some areas that have gullies. Also included is a small acreage where the slope is as much as 17 percent. These areas are too small to be mapped separately.

Carnegie very fine sandy loam, 8 to 12 percent slopes, is better suited to woods or pasture than to tilled crops. Nearly all of it is in trees or cutover woodland. Its limitations are the strong slope and the serious hazard of erosion. If the soil is used for cultivated crops, a good system for disposal of excess water is needed. Sod crops should be grown in the rotation about three-fourths of the time. (Capability unit IVe–15; woodland suitability group 5; Coastal Plain Hills range site.)

Carnegie very fine sandy loam, 8 to 12 percent slopes, eroded (CgD2).—This soil has a much thinner solum than Carnegie very fine sandy loam, 2 to 5 percent slopes. The present surface layer is a mixture of very fine sandy loam from the original surface layer and the upper part of the subsoil. Runoff is more rapid on this soil than on the less sloping Carnegie soils.

Mapped with this soil are small areas where all of the original surface layer has been lost through erosion. The present surface layer consists of reddish material from the subsoil. Also included are small areas where the slope is as much as 17 percent.

Carnegie very fine sandy loam, 8 to 12 percent slopes, eroded, is better suited to woods or pasture than to tilled crops. Its greatest limitations are the strong slope and erosion. Nearly all of the soil was once cultivated, but it has reverted to pine trees. (Capability unit IVe-15; woodland suitability group 5; Coastal Plain Hills range site.)

Coastal Beaches

This miscellaneous land type consists of areas of sandy beaches along the ocean. The loose sand in these areas has been reworked by wind and waves. The sand shows no soil development and supports little or no vegetation.

Coastal beaches (Co).—This land type consists primarily of white sand that contains fragments of seashells. The sand is nearly uniform in color and texture to a depth of several feet. The areas are generally long and narrow. Most of them border the gulf, but some are along Mobile Bay. Nearly all of them are only 200 to 300 yards from the edge of the water.

In this land type, wind has blown much of the sand into low dunes. The slope on the landward side of the dunes is as steep as 15 percent, but the dominant slope is between 0 and 5 percent.

Nearly all of this land type, on the seaward side, is bare of vegetation. A sparse growth of sea oats, saw-palmetto, wiregrass, and sand pine is on the landward side.

This land type has very little agricultural value because the vegetation is too sparse to be used for range. The areas are used mainly for recreation. (Capability unit VIIIs-11; woodland suitability group 12; Coastal Plain Sands range site.)

Cuthbert Series

The Cuthbert series consists of moderately well drained soils that are shallow over sandy loam or sandy clay. The soils are on uplands of the Coastal Plain, where they developed in strongly acid clay and a thin layer of sand. The slope ranges from 2 to 17 percent, but the dominant slope is between 5 and 8 percent.

The surface layer of these soils is dark grayish-brown or brown to dark-gray fine sandy loam. Their subsoil is mottled yellowish-brown or strong-brown sandy clay or silty clay.

The largest areas of Cuthbert soils are in the upper one-third of the county, where they are associated with the Bowie and Lakeland soils. The Cuthbert soils are less friable than the Bowie soils, and their subsoil is more mottled. They are much finer textured throughout than the Lakeland soils.

The natural vegetation on the Cuthbert soils is longleaf pine, loblolly pine, and shortleaf pine. These trees are mixed with scrub oaks, turkey oaks, and dogwoods.

Cuthbert fine sandy loam, 5 to 8 percent slopes (CtC).—This soil is mainly in the upper one-third of the county. The following describes a profile in a moist, wooded area (SE¼SE¼ sec. 33, T. 3 N., R. 4 E.):

A_0—2 inches to 0, layer of partly decomposed pine needles and grass.

A_1—0 to 3 inches, dark grayish-brown (2.5Y 4/2) light fine sandy loam; weak, fine, crumb structure; very friable; extremely acid; clear, wavy boundary.

A_2—3 to 9 inches, light olive-brown (2.5Y 5/4) light fine sandy loam; few, fine, faint mottles of dark grayish-brown (2.5Y 4/2) stains caused by organic matter; weak, fine, crumb structure; very friable; extremely acid; clear, wavy boundary.

B_2—9 to 18 inches, yellowish-brown (10YR 5/6) sandy clay; few, fine, distinct mottles of yellowish red (5YR 5/6); moderate, medium subangular blocky structure; very firm; extremely acid; gradual, wavy boundary.

C_1—18 to 30 inches, strong-brown (7.5YR 5/6) silty clay; many, fine, distinct mottles of yellow (10YR 8/6), gray (10YR 5/1), and red (2.5YR 4/8); moderate, medium, subangular blocky structure; very firm; extremely acid; gradual, wavy boundary.

C_2—30 to 58 inches, gray (5Y 5/1) clay; many, coarse, prominent mottles of pale red (2.5YR 6/2) and yellowish brown (10YR 5/8); moderate, coarse, subangular blocky structure; very firm; extremely acid; clear, wavy boundary.

D—58 to 82 inches +, light-gray (5Y 7/1), thin layer of sandy loam and sandy clay; many, coarse, prominent mottles of brownish yellow (10YR 6/8); massive; friable or firm; extremely acid.

The surface layer of this soil ranges from very dark grayish brown or grayish brown to brown or dark gray. In places the upper part of the subsoil is redder than that in the profile described as typical of the series, and the lower part of the subsoil and the C horizon contain more of the reddish mottles. In some places there is little or no development of a B horizon. Small iron concretions and fragments of sandstone cemented with iron occur throughout the profile where this soil adjoins soils of the Sunsweet series. The fragments are 3 to 5 inches in diameter.

Mapped with this soil are a few areas that have a surface layer of very fine sandy loam, sandy loam, or loamy fine sand. Also included are a few areas where from 25 to 100 percent of the surface layer has been lost through erosion. Where all of the original surface layer has been lost, the present surface layer is sandy clay that was formerly part of the subsoil. Some areas that are included have gullies. The included areas are too small to be mapped separately.

Cuthbert fine sandy loam, 5 to 8 percent slopes, is low in fertility and in content of organic matter. It is extremely acid. Water infiltrates slowly, permeability is slow to very slow, and runoff is medium to rapid. The soil is moderately well drained, and its capacity for storing available moisture is low.

This soil is probably best suited to trees. It is limited in its use for crops by the slow or very slow permeability, strong slope, and hazard of erosion. All of the soil is wooded, but, if it is carefully managed, the soil can be used for pasture. (Capability unit VIe-19; woodland suitability group 7; Coastal Plain Hills range site.)

Cuthbert fine sandy loam, 2 to 5 percent slopes (CtB).—This soil is on the narrow crests of ridges adjacent to steep slopes. It has a thicker solum than Cuthbert fine sandy loam, 5 to 8 percent slopes. Runoff is also slower, and the soil is less susceptible to erosion.

Mapped with this soil are a few areas where all of the original surface layer has been lost through erosion. The present surface layer is sandy clay that was formerly part of the subsoil. These areas are too small to be mapped separately.

Cuthbert fine sandy loam, 2 to 5 percent slopes, is low in fertility and in content of organic matter. It is very strongly acid. Water infiltrates slowly, permeability is slow or very slow, and runoff is medium. The soil is moderately well drained, and its capacity for storing available moisture is low.

This soil is poorly suited to cultivated crops. All of it is wooded. (Capability unit IVs–19; woodland suitability group 7; Coastal Plain Hills range site.)

Cuthbert fine sandy loam, 8 to 12 percent slopes (CtD).—This soil has a thinner and more variable solum than Cuthbert fine sandy loam, 5 to 8 percent slopes. Runoff is rapid, and the hazard of erosion is great.

Mapped with this soil are a few areas where 25 to 100 percent of the fine sandy loam in the surface layer has been lost through erosion. Where all of the original surface layer has been lost, the present surface layer is mottled sandy clay or silty clay that was formerly part of the subsoil. These areas are too small to be mapped separately.

Cuthbert fine sandy loam, 8 to 12 percent slopes, is low in fertility and in content of organic matter. It is very strongly acid. Water infiltrates slowly, and permeability is slow or very slow. Runoff is rapid, and the soil has a low available moisture-holding capacity.

This soil is probably best suited to trees. Use of this soil for crops is limited by slow or very slow permeability, strong slope, and the serious hazard of erosion. All of the areas are wooded. (Capability unit VIe–19; woodland suitability group 7; Coastal Plain Hills range site.)

Cuthbert fine sandy loam, 12 to 17 percent slopes (CtE).—This soil has a thinner and more variable solum than Cuthbert fine sandy loam, 5 to 8 percent slopes. Mapped with this soil are a few areas where 25 to 75 percent of the original surface layer has been lost through erosion, and in places there are a few gullies.

This soil is low in fertility and in content of organic matter, and it is very strongly acid. Water infiltrates very slowly. Permeability is very slow, and the available moisture-holding capacity is low.

This soil is probably best suited to trees. Its use for crops is limited by extreme slope, very rapid runoff, very slow permeability, and the hazard of erosion. All of the soil is wooded. (Capability unit VIIe–19; woodland suitability group 7; Coastal Plain Hills range site.)

Cuthbert, Bowie, and Sunsweet soils, 5 to 8 percent slopes (CuC).—This undifferentiated soil group consists of areas of Cuthbert, Bowie, and Sunsweet soils so mixed that it is impractical to show them separately on a map. A profile that is representative of the soils of each of these series is described under the name of the series.

These soils have a shallow root zone. They are low in organic matter and plant nutrients and are strongly acid or very strongly acid. Water infiltrates at a moderate to slow rate, and permeability is slow or very slow. The capacity for storing available moisture is low. These soils are fairly easy to work, except for areas of Cuthbert and Sunsweet soils, where the clayey subsoil is near the surface.

The low content of plant nutrients, limited capacity for storing available moisture, and rather shallow root zone for most crops make these soils poorly suited to cultivation. If the soils are well managed, moderate yields of pasture crops are obtained. Practically all of the acreage is wooded. (Capability unit VIe–19; woodland suitability group 7; Coastal Plain Hills range site.)

Cuthbert, Bowie, and Sunsweet soils, 8 to 12 percent slopes (CuD).—On these soils runoff is more rapid than on Cuthbert, Bowie, and Sunsweet soils, 5 to 8 percent slopes; therefore, the hazard of erosion is greater.

These soils are low in fertility, and they contain little organic matter. They are strongly acid. Water infiltrates slowly, and permeability is slow or very slow. The capacity for storing available moisture is low.

These soils are probably best suited to pine trees. Their use for crops is limited by their strong slope, their slow or very slow permeability, and the serious hazard of erosion. All of the acreage is wooded. (Capability unit VIe–19; woodland suitability group 7; Coastal Plain Hills range site.)

Cuthbert, Bowie, and Sunsweet soils, 12 to 17 percent slopes, eroded (CuE2).—These soils have lost much of their original surface layer through erosion. In most places the present surface layer consists of a mixture of soil material from the original surface layer and the subsoil. It is grayish-brown to yellowish-brown fine sandy loam to clay loam, and it is at a depth of 4 to 6 inches. In some places all of the original surface layer has been lost and the present surface layer is yellow to strong-brown, very firm or firm sandy clay loam to clay that was formerly part of the subsoil.

These soils are low in content of organic matter and in plant nutrients. Water infiltrates slowly and permeability is slow. Runoff is rapid, and the capacity for storing available moisture is low. In much of the acreage, these soils are difficult to work.

These soils are not suited to cultivated crops or to pasture. All of the acreage was once cultivated, but now it is all wooded. (Capability unit VIIe–19; woodland suitability group 7; Coastal Plain Hills range site.)

Eustis Series

The Eustis series consists of deep, excessively drained soils that are strongly acid. The soils developed in unconsolidated loamy fine sand and sand and are on uplands of the Coastal Plain. They are underlain by red sandy loam to sandy clay loam at a depth of 35 to 60 inches or more. Their slope ranges from 0 to 12 percent, but in most places it is between 0 and 5 percent.

The surface layer of these soils is dark grayish-brown to dark-brown loamy fine sand. The subsoil is strong-brown to yellowish-red loamy fine sand.

The largest acreage of Eustis soils is in the vicinity of Silverhill and Elberta, but small areas occur throughout the uplands of the county. These soils are associated with the Lakeland and Ruston soils. In texture, their subsoil is similar to that of the Lakeland soils, but it is strong brown to yellowish red rather than yellow to yellowish brown. The Eustis soils are similar to the Ruston soils in color, but they are coarser textured. They also have a lower natural supply of plant nutrients.

A large part of the acreage of the Eustis soils is under a forest consisting mainly of longleaf pine, slash pine, and loblolly pine, but some oaks and hickory trees are mixed in the stand. The understory is made up mainly of dogwoods, scrub oaks, and native grasses.

Eustis loamy fine sand, 0 to 5 percent slopes (EuB).—This is a deep, excessively drained soil on uplands of the Coastal Plain. The following describes a profile in a moist, wooded area:

A_0—2 inches to 0, grass and pine straw that are partly decomposed.

A_1—0 to 5 inches, dark grayish-brown (10YR 4/2) loamy fine sand; weak, fine, crumb structure; loose when dry, very friable when moist; many fine roots; strongly acid; abrupt, wavy boundary.

AC—5 to 17 inches, yellowish-red (5YR 5/6) loamy fine sand; weak, fine, crumb structure; loose when dry, very friable when moist; common fine roots; strongly acid; gradual, wavy boundary.

C_1—17 to 37 inches, yellowish-red (5YR 5/8) loamy fine sand; weak, fine, crumb structure; very friable; few roots; strongly acid; clear, wavy boundary.

D—37 to 54 inches +, red (2.5YR 4/8) heavy sandy loam; weak, fine, subangular blocky structure; soft when dry, friable when moist; strongly acid.

The surface layer of this soil ranges from brown to dark brown in areas that are cultivated to very dark grayish brown in wooded areas. Below it, the soil material is strong brown to yellowish red. In some areas there are a few small iron concretions throughout the profile.

Mapped with this soil are a few areas that have a surface layer of dark reddish brown overlying soil material that is red to dark red. Also included are areas that have a surface layer of loamy sand to sand that overlies loamy sand. In some included areas the loamy fine sand overlies a finer textured material, which is at a depth of less than 30 inches. The included areas are too small to be mapped separately.

Eustis loamy fine sand, 0 to 5 percent slopes, is low in fertility and in content of organic matter. Its capacity for storing available moisture is low or very low. Water infiltrates rapidly and permeability is rapid; therefore, runoff is slow. The soil has good tilth and is easy to work, but it is droughty and susceptible to severe leaching. Sheet erosion presents a slight to moderate hazard, and there are a few gullies in places. This soil can be cultivated soon after rains, and it does not become hard when dry. The supply of plant nutrients and the water-holding capacity can be increased by turning under a green-manure crop, adding other organic matter, and applying fertilizer frequently. The soil responds fairly well to good management, particularly if fertilizer and organic matter are added.

This soil is well suited to trees and is fairly well suited to pasture and tilled crops. About 30 percent of it is in cultivated crops or pasture, and the rest is wooded. Yields are low, and the number of suitable crops that can be grown is limited by the very low fertility of the soil, the low or very low moisture-holding capacity, and the susceptibility to drought and leaching. (Capability unit IIIs–11; woodland suitability group 1; Coastal Plain Sands range site.)

Eustis loamy fine sand, 5 to 8 percent slopes (EuC).—This soil has more rapid runoff than Eustis loamy fine sand, 0 to 5 percent slopes, and the hazard of erosion is greater.

Mapped with this soil are a few areas that have shallow to deep gullies. These areas are too small to be mapped separately.

Eustis loamy fine sand, 5 to 8 percent slopes, is probably best suited to trees or pasture. Its use for crops is limited by its very low fertility, low or very low moisture-holding capacity, susceptibility to drought and leaching, and susceptibility to erosion. About 80 percent of it is wooded, 10 percent is in cultivated crops, and the rest is in pasture. (Capability unit IVs–11; woodland suitability group 1; Coastal Plain Sands range site.)

Figure 5.—A deep gully in an area of Eustis loamy fine sand, 8 to 12 percent slopes. Water that drains into the head of the gully must be diverted before the soil material in the gully can be stabilized.

Eustis loamy fine sand, 8 to 12 percent slopes (EuD).—This soil has much more rapid runoff and greater susceptibility to erosion than Eustis loamy fine sand, 0 to 5 percent slopes.

Mapped with this soil are small areas that have a few deep gullies (fig. 5) and large outcrops of sandstone.

Eustic loamy fine sand, 5 to 8 percent slopes, is probably best suited to trees, but it can be used for pasture if it is managed well. All of it is wooded. (Capability unit VIs–11; woodland suitability group 1; Coastal Plain Sands range site.)

Faceville Series

The Faceville series consists of deep, well-drained soils that are very strongly acid. The soils developed in unconsolidated loam to sandy clay loam and are on uplands of the Coastal Plain. Their slope ranges from 0 to 8 percent, but in most places it is between 0 and 5 percent.

The surface layer of these soils is brown or dark grayish-brown to dark-gray sandy loam to very fine sandy loam. The subsoil ranges from strong-brown to yellowish-red loam to sandy clay loam.

The Faceville soils are mainly near Robertsdale, Loxley, and Fairhope. They are associated with the Marlboro, Magnolia, Ruston, and Carnegie soils. The Faceville soils are similar to the Ruston soils in color, but their surface layer is thinner and their subsoil is finer textured. They are redder than the Marlboro soils, less red than the Magnolia soils, and contain fewer iron concretions than the Carnegie soils.

The natural vegetation on the Faceville soils is longleaf pine, slash pine, and loblolly pine. In places there are hickory trees, dogwoods, and a few oaks.

Faceville fine sandy loam, 0 to 2 percent slopes (FaA).—This deep, well-drained soil is on uplands of the Coastal Plain. The following describes a profile in a moist, cultivated area (SW¼SE¼ sec. 7, T. 6 S., R. 4 E.):

A_p—0 to 7 inches, grayish-brown (10YR 5/2) fine sandy loam; weak, fine, crumb structure; friable; a few soft iron concretions ⅛ to ¼ inch in diameter; many fine roots; very strongly acid; abrupt, smooth boundary.

B_2—7 to 34 inches, yellowish-red (5YR 5/8) loam; weak, fine, subangular blocky structure; friable; a few soft iron concretions ⅛ to ¼ inch in diameter; a few fine roots; very strongly acid; gradual, wavy boundary.

B_3—34 to 55 inches, yellowish-red (5YR 5/8) clay loam; few, medium, distinct mottles of red (2.5YR 4/8) and yellow (10YR 7/6); weak, fine, subangular blocky structure; friable; a few soft iron concretions ⅛ to ¼ inch in diameter; very strongly acid; gradual, wavy boundary.

C—55 to 60 inches +, yellowish-brown (10YR 5/8) clay loam; many, coarse, prominent mottles of dark red (2.5YR 3/6); weak, fine, subangular blocky structure; friable; common iron concretions ⅛ to ¼ inch in diameter; very strongly acid.

The surface layer of this soil ranges from grayish brown or dark grayish brown to dark gray. The subsoil is strong brown to yellowish red. The number of small, rounded iron concretions ranges from few to none.

Mapped with this soil are areas that have a surface layer of sandy loam to very fine sandy loam. These areas are too small to be mapped separately.

Faceville fine sandy loam, 0 to 2 percent slopes, is low in natural fertility and in content of organic matter. It is very strongly acid. Surface runoff is very slow, internal drainage is medium, and permeability is moderate. Water infiltrates slowly, and the capacity for storing available moisture is moderate to low. The soil responds well to good management, especially to additions of fertilizer and organic matter.

This soil has no serious limitations; it can be used to grow a number of different kinds of crops (fig. 6) or for pasture or trees. Nearly all of the acreage is used for crops. (Capability unit I–11; woodland suitability group 5; Coastal Plain Hills range site.)

Figure 6.—**Potatoes growing in a field consisting of Faceville fine sandy loam, 0 to 2 percent slopes.**

Faceville fine sandy loam, 2 to 5 percent slopes (FaB).—This soil has a thinner solum than Faceville fine sandy loam, 0 to 2 percent slopes. Runoff is more rapid, the moisture-holding capacity is slightly lower, and the hazard of erosion is greater.

This soil is suited to a number of different crops and to pasture and trees. If it is cultivated, methods to control water, such as use of contour tillage, terraces, and vegetated waterways, are needed to protect it from erosion. The soil responds well to additions of fertilizer and organic matter. It is principally in trees and pasture. (Capability unit IIe–11; woodland suitability group 5; Coastal Plain Hills range site.)

Faceville fine sandy loam, 2 to 5 percent slopes, eroded (FaB2).—This soil has a thinner surface layer than Faceville fine sandy loam, 0 to 2 percent slopes. Runoff is also more rapid, the moisture-holding capacity is slightly lower, and the hazard of erosion is greater. Because of erosion, the present surface layer is yellowish-red loam that was formerly part of the subsoil.

If this soil is used for crops, supplementary practices to control water are needed. These practices include use of a good crop rotation, terraces, contour tillage, and vegetated waterways. The soil responds well to additions of fertilizer and organic matter. It is mainly in pasture or trees. (Capability unit IIe–11; woodland suitability group 5; Coastal Plain Hills range site.)

Faceville fine sandy loam, 5 to 8 percent slopes (FaC).—This soil has a more sandy surface layer and a thinner solum than Faceville fine sandy loam, 0 to 2 percent slopes. Runoff is more rapid, and the hazard of erosion is moderate to severe.

This soil is well suited to pasture plants and to pines. Its greatest limitations are its strong slope, rapid runoff, and the hazard of erosion. The soil can be used for cultivated crops if it is protected from erosion and a complete system is installed to dispose of excess water. The best yields will probably be obtained if grasses are grown in the rotation 2 years out of 3, and cultivated crops are grown the rest of the time. Most of this soil is in trees. (Capability unit IIIe–11; woodland suitability group 5; Coastal Plain Hills range site.)

Faceville fine sandy loam, 5 to 8 percent slopes, eroded (FaC2).—This soil has a thinner solum than Faceville fine sandy loam, 0 to 2 percent slopes, and its moisture-holding capacity is slightly lower. Runoff is more rapid, and the hazard of erosion is moderate to severe. In most places from 25 to 75 percent of the original surface layer has been lost through erosion. In some places, however, all of the original surface layer has been lost and the present surface layer is yellowish-red loam that was formerly part of the subsoil.

This soil is best suited to permanent pasture and to pines. Its greatest limitations are the strong slope, rapid runoff, erosion, and the hazard of further erosion. The soil can be used for cultivated crops if it is protected from erosion and a complete system is installed to dispose of excess water. The best yields of forage will probably be obtained if the soil is used for grasses 2 years out of 3 and cultivated crops are grown the rest of the time. (Capability unit IIIe–11; woodland suitability group 5; Coastal Plain Hills range site.)

Flint Series

The Flint series consists of moderately deep, moderately well drained soils on the terraces of streams. The soils developed in old alluvium consisting of silty clay to clay. Their slope ranges from 2 to 5 percent.

The surface layer of these soils is very dark gray silt loam. Their subsoil is yellowish-red silty clay, and their substratum is mottled clay.

The Flint soils are mainly in the northwestern part of the county. They are associated with the Wahee, Leaf, and Myatt soils, and in places they are mapped with the Wahee and Leaf soils. The Flint soils are better drained than any of the associated soils, and they are finer textured throughout than the Myatt soils.

The natural vegetation on the Flint soils is longleaf pine, shortleaf pine, loblolly pine, and scattered oaks.

Flint silt loam, 2 to 5 percent slopes (FsB).—This moderately deep, moderately well drained soil is on terraces along streams. The following describes a typical profile:

A_1—0 to 5 inches, very pale brown (10YR 7/3) silt loam; weak, medium, granular structure; very friable; strongly or very strongly acid; diffuse, wavy boundary.

A_2—5 to 7 inches, white (10YR 8/2) silt loam; common, medium, distinct mottles of dark yellowish brown (10YR 4/4); very friable; gradual, wavy boundary.

B_1—7 to 10 inches, yellowish-brown (10YR 5/8) silty clay loam; few, fine, faint mottles of light gray; medium, subangular blocky structure; hard when dry, plastic when wet; gradual, wavy boundary.

B_{21}—10 to 16 inches, yellowish-red (5YR 5/8) clay; moderate, medium, subangular blocky structure; hard when dry, plastic when wet; diffuse, wavy boundary.

B_{22}—16 to 40 inches, yellowish-red (5YR 4/8) clay; few, fine, faint mottles of yellowish brown; strong, coarse, subangular blocky structure; plastic when wet; strongly acid; clear, wavy boundary.

C_1—40 to 52 inches, mottled red, yellow, and gray clay; many, medium, prominent mottles; strong, coarse, subangular blocky structure; hard when dry, plastic when wet; strongly acid.

In some areas there is no A_2 horizon and the surface layer is very dark grayish-brown (10YR 3/2) to strong-brown (7.5YR 5/6) silt to loam to a depth of 6 inches. In places the B_1 horizon is very thin or is lacking and the B_2 horizon is at a depth of 6 to 8 inches.

This soil is low in natural fertility and contains little organic matter. It is strongly acid or very strongly acid, and it has a moderate to low capacity for storing available moisture. Water infiltrates very slowly and permeability is slow. Runoff is medium, and the hazard of erosion is slight to moderate.

This soil is productive under good management. It is not well suited, however, to plants that require good internal drainage and a thick, permeable root zone. Most of the acreage is wooded, but a small part is in cultivated crops or pasture. (Capability unit IIe-13; woodland suitability group 14; Coastal Plain Flatwoods range site.)

Flint, Wahee, and Leaf silt loams, 0 to 5 percent slopes (FwB).—About 40 percent of this undifferentiated soil group consists of Flint silt loam, about 40 percent, of Wahee silt loam, and the rest, of Leaf silt loam. A profile that is representative of each of these soils is described under the name of the appropriate series.

These soils are in parallel strips on low ridges and in the intervening depressions. The Flint soil occupies the higher areas, the Wahee soil is in the intermediate positions, and the Leaf soil is in small depressions and in sloughs. All of the acreage is in the northwestern part of the county.

These soils are low in fertility and contain little organic matter. Runoff is medium to very slow. Internal drainage and permeability are very slow.

If these soils are well managed, they can be used for some of the crops commonly grown in the county. The Leaf soil, however, needs to be drained before it can be used for crops. The poor drainage and the shallowness of the surface layer over the clayey subsoil limit the kinds of crops that can be grown. Nearly all of the acreage is wooded. (Capability unit IIIw-12; woodland suitability group 14; Coastal Plain Flatwoods range site.)

Goldsboro Series

The Goldsboro series consists of deep, moderately well drained soils that are very strongly acid. The soils developed in sandy loam to sandy clay loam on uplands of the Coastal Plain. Their slope ranges from 0 to 8 percent, but in most places it is between 0 and 2 percent.

The surface layer of these soils is grayish-brown to very dark gray fine sandy loam. Their subsoil ranges from olive yellow to yellowish brown, and it overlies a substratum of mottled sandy loam to sandy clay loam.

The Goldsboro soils are mainly near Elberta, Foley, and Summerdale, where they are associated with the Norfolk, Lynchburg, and Klej soils. They have a texture that is similar to that of the Norfolk and Lynchburg soils, but they are less well drained than the Norfolk soils and are better drained than the Lynchburg. The Goldsboro soils are finer textured throughout than the Klej soils.

The natural vegetation on the Goldsboro soils is mainly longleaf pine and slash pine. The understory is gallberry, scattered oaks, and wiregrass.

Goldsboro fine sandy loam, 0 to 2 percent slopes (GoA).—This is a deep, moderately well drained soil of the uplands. The following describes a profile in a moist, wooded area (SW¼NW¼ sec. 33, T. 6 S., R. 5 E.):

A_0—partly decomposed forest litter.

A_1—0 to 6 inches, very dark grayish-brown (10YR 3/2) fine sandy loam; weak, fine, crumb structure; very friable; many fine roots; strongly acid or very strongly acid; clear, smooth boundary.

A_3—6 to 10 inches, dark grayish-brown (10YR 4/2) fine sandy loam; weak, fine, crumb structure; very friable; many fine roots; very strongly acid; clear, smooth boundary.

B_1—10 to 17 inches, light olive-brown (2.5Y 5/6) fine sandy loam; weak, fine, subangular blocky structure; very friable or friable; a few fine roots; very strongly acid; gradual, wavy boundary.

B_2—17 to 31 inches, olive-yellow (2.5Y 6/6) fine sandy loam; few, fine, faint mottles of light gray (2.5Y 7/2); weak, fine, subangular blocky structure; very friable or friable; very strongly acid; clear, wavy boundary.

C—31 to 60 inches, olive-yellow (2.5Y 6/6) fine sandy loam; few, fine, faint mottles of light gray (2.5Y 7/2); massive; compact but friable; very strongly acid.

The surface layer of this soil ranges from grayish brown or very dark grayish brown to very dark gray. The subsoil is olive yellow to yellowish brown, and its texture ranges from sandy loam to sandy clay loam.

Mapped with this soil are a few areas that have a surface layer of loamy sand, sandy loam, very fine sandy loam, or loam. These areas are too small to be mapped separately.

Goldsboro fine sandy loam, 0 to 2 percent slopes, is low in natural fertility and in content of organic matter. The rate of infiltration is moderate, permeability is moderate to slow, and the capacity for storing available moisture is moderate to low.

This soil is suited to trees, pasture, and tilled crops. It is limited in its use for crops, however, because it stays wet a long time after heavy rains. As a result, the planting and harvesting of crops is sometimes delayed. About 60 percent of this soil is in field crops, 30 percent is in trees, and 10 percent is in pasture. (Capability unit IIw-16; woodland suitability group 5; Coastal Plain Flatwoods range site.)

Goldsboro fine sandy loam, 2 to 5 pecent slopes (GoB).—This soil has a somewhat thinner solum than Goldsboro fine sandy loam, 0 to 2 percent slopes. Fragments of sandstone, cemented with iron, are in the profile, and a weakly cemented, mottled layer is near the surface. In places this soil is on a low ridge that extends through areas of well-drained soils, and in other places it is transitional between areas of well-drained and poorly drained soils.

This soil is fairly well suited to cultivated crops if it is adequately drained. It is limited to some extent, however, by the hazard of erosion as well as by the need for drainage. In some years a cultivated crop can be grown successfully, but harvesting may be difficult because of excess wetness. About 60 percent of this soil is in trees, 30 percent is in pasture, and 10 percent is in field crops. (Capability unit IIe-16; woodland suitability group 5; Coastal Plain Flatwoods range site.)

Goldsboro fine sandy loam, 5 to 8 percent slopes (GoC).—This soil has a thinner solum than Goldsboro fine sandy loam, 0 to 2 percent slopes. Generally, fragments of broken sandstone cemented with iron are in the profile. In places a weakly cemented, mottled layer is at a depth of 20 to 25 inches. This soil is transitional between well-drained and poorly drained soils.

This soil is probably best suited to pasture grasses and clovers that require a fairly large amount of moisture, but it can be used for cultivated crops. About 80 percent of the soil is in trees, 15 percent is in pasture, and 5 percent is in field crops. (Capability unit IIIe-16; woodland suitability group 5; Coastal Plain Flatwoods range site.)

Grady Series

The Grady series consists of deep, poorly drained and very poorly drained, nearly level soils that are strongly acid or very strongly acid. The soils developed in deposits of sandy clay loam to clay on uplands of the Coastal Plain.

The surface layer of these soils ranges from very dark gray to black fine sandy loam to silty clay loam. Their subsoil is mottled and consists of gray sandy loam to clay.

These soils are associated with the Marlboro, Robertsdale, Tifton, Irvington, Greenville, Norfolk, Goldsboro, and Ruston soils. They are in depressions and in intermittent ponds that are surrounded by areas of associated soils.

The natural vegetation on the Grady soils is cypress and gum.

Grady soils (Gr).—The Grady soils in this county are mapped as one unit. The following describes a profile in a wet depression:

A_1—0 to 10 inches, very dark gray (10YR 3/1) to black (10YR 2/1) silty clay loam; strong, medium, granular to moderate, medium, subangular blocky structure; firm when moist, sticky when wet; very strongly acid; clear, wavy boundary.

B_{2g}—10 to 36 inches, gray (10YR 6/1) clay faintly mottled with yellow; massive; firm when moist, very sticky and plastic when wet; very strongly acid; abrupt, wavy boundary.

C_{1g}—36 inches +, mottled yellow, red, and gray sandy clay; massive; friable; very strongly acid.

The surface layer of these soils is very dark gray to black. The texture of the subsoil ranges from sandy loam to clay.

Mapped with these soils are areas that have a surface layer of fine sandy loam to silty clay loam. Also included are some areas where the surface layer is muck to a depth of as much as 12 inches. About 5 percent of the acreage of Grady soils occurs within areas of Norfolk, Ruston, and Goldsboro soils, and in those areas the surface layer and subsoil are sandier than those in the profile described as typical of the series. In some places there is a concretionary pan in the profile. These areas are all too small to be mapped separately.

The Grady soils are low in natural fertility and medium in content of organic matter. They have a moderate to low capacity for storing available moisture, and they are very slowly permeable. Water infiltrates very slowly.

These soils are limited in their use for crops by their poor drainage, very slow permeability, poor tilth, and the hazard of flooding. Nearly all of the acreage is wooded or idle, but small areas have been drained (fig. 7) and planted to pasture or cultivated crops. Crop yields are low, however, even after the soils are drained. (Capability unit IIIw-11; woodland suitability group 4; Swamps range site.)

Figure 7.—A ditch used to drain an area of Grady soils to make them suitable for crops.

Greenville Series

The Greenville series consists of very deep, well-drained soils that are strongly acid or very strongly acid. The soils developed in clay loam of the Coastal Plain. Their slope ranges from 0 to 8 percent, but in most places it is between 0 and 2 percent.

The surface layer of these soils is dark-brown to dark reddish-brown loam. Their subsoil is red to dark-red sandy clay loam to sandy clay.

The Greenville soils are mainly near Belforest, and they are associated with the Magnolia, Red Bay, and Carnegie soils. Their surface layer is darker and redder than that of the Magnolia soils. The Greenville soils are similar to the Red Bay soils in color, drainage, and depth, but they have a finer textured subsoil. Their surface layer is darker and redder than that of the Carnegie soils, but they have fewer iron-manganese concretions on the surface and throughout the profile.

The Greenville soils respond well to good management. Their response is particularly good if fertilizer and organic matter are added.

The natural vegetation on these soils is longleaf pine and mixed hardwoods.

Greenville loam, 0 to 2 percent slopes (GvA).—This very deep, well-drained soil is on the nearly level parts of uplands of the Coastal Plain. The following describes a profile in a moist pasture (NE¼NE¼ sec. 21, T. 5 S., R. 4 E.):

A_p—0 to 4 inches, dark reddish-brown (5YR 3/3) loam; weak, fine, crumb structure; friable; many fine grass roots; strongly acid; clear, smooth boundary.

A_3—4 to 9 inches, dark-red (2.5YR 3/6) loam; weak, fine, crumb structure; friable; many fine grass roots; strongly acid or very strongly acid; gradual, wavy boundary.

B_1—9 to 17 inches, dark-red (10R 3/6) sandy clay loam; weak, fine, subangular blocky structure; friable; a few fine grass roots; strongly acid or very strongly acid; gradual, wavy boundary.

B_{21}—17 to 72 inches, dark-red (10R 3/6) clay loam; weak, fine, subangular blocky structure; friable; strongly acid or very strongly acid; gradual, wavy boundary.

B_{22}—72 to 100 inches, dark-red (10R 3/6) clay loam; weak, fine, subangular blocky structure; friable; strongly acid or very strongly acid.

The surface layer of this soil ranges from dark brown to dark reddish brown. The subsoil is red to dark red; its texture ranges from sandy clay loam or clay loam to sandy clay.

Mapped with this soil are areas that have a surface layer of sandy loam and fine sandy loam. Some areas are included that have a few small, rounded iron concretions on the surface and throughout the subsoil. Also included are a few areas that have several inches of local alluvium on the surface. These areas are too small to be mapped separately.

Greenville loam, 0 to 2 percent slopes, is moderate in natural fertility and medium in content of organic matter. Surface runoff is very slow, permeability is moderate, and the water-holding capacity is moderate to low. The rate of infiltration is moderate. This soil is easy to work and to protect from erosion.

This soil has no serious limitations and can be used to grow a number of different kinds of tilled crops. It is especially well suited to pecan trees (fig. 8), and it is suited to pine trees and pasture. The soil can be improved easily. If well managed, it can be kept highly productive. Nearly all of it is cultivated. (Capability unit I–11; woodland suitability group 5; Coastal Plain Hills range site.)

Figure 8.—**A grove of pecan trees and a pasture of crimson clover and ryegrass on Greenville loam, 0 to 2 percent slopes. The crimson clover and ryegrass can be grazed in winter.**

Greenville loam, 2 to 5 percent slopes (GvB).—This soil has more rapid runoff than Greenville loam, 0 to 2 percent slopes, and the hazard of erosion is greater.

This soil is suited to the same crops as Greenville loam, 0 to 2 percent slopes, but yields are normally a little less. Also, because of the greater hazard of erosion, this soil requires more intensive management. If it is used for cultivated crops, such practices as use of terraces, vegetated waterways, and a suitable crop rotation are needed to protect it from erosion. Nearly all of this soil is wooded. (Capability unit IIe–11; woodland suitability group 5; Coastal Plain Hills range site.)

Greenville loam, 2 to 5 percent slopes, eroded (GvB2).—This soil has more rapid runoff than Greenville loam, 0 to 2 percent slopes, and the hazard of erosion is greater. From 25 to 75 percent of the original surface layer has been lost through erosion.

Mapped with this soil are a few areas that have lost all of the original surface layer through erosion. These areas are too small to be mapped separately.

Greenville loam, 2 to 5 percent slopes, eroded, is suited to the same crops as Greenville loam, 0 to 2 percent slopes, but yields are normally less. Also, because of past erosion and the hazard of further erosion, this soil requires more intensive management. If it is used for cultivated crops, such practices as use of terraces, vegetated waterways, and a suitable crop rotation are needed to protect it from erosion. Nearly all of the soil is in pasture. (Capability unit IIe–11; woodland suitability group 5; Coastal Plain Hills range site.)

Greenville loam, 5 to 8 percent slopes, eroded (GvC2).—This soil has more rapid runoff than Greenville loam, 0 to 2 percent slopes, and the hazard of erosion is greater. From 25 to 75 percent of the original surface layer has been lost through erosion. The present surface layer is a mixture of material from the original surface layer and from the upper part of the subsoil. Tilth is fair.

Mapped with this soil are areas that have lost all of their original surface layer through erosion. These areas are too small to be mapped separately.

Greenville loam, 5 to 8 percent slopes, eroded, is suited to bahiagrass, bermudagrass, and other deep-rooted pasture plants. It is also suited to winter grasses and legumes, such as ryegrass and crimson clover. If the soil is cultivated, practices to control supplementary water are needed. Sod crops need to be grown in the rotation about two-thirds of the time to protect this soil from further erosion, to conserve moisture, and to maintain or increase the supply of organic matter. Yields are generally lower on this soil than on Greenville loam, 0 to 2 percent slopes. About half of the soil is in tilled crops, and about half is in pasture. (Capability unit IIIe-11; woodland suitability group 5; Coastal Plain Hills range site.)

Gullied Land

This miscellaneous land type consists of areas that have been so badly cut by erosion that little of the original soil profile remains. Such areas are not suitable for cultivation.

Gullied land (Gw).—This miscellaneous land type consists of severely gullied areas that are no longer arable. Before the areas were eroded, they consisted of Lakeland, Bowie, Cuthbert, Carnegie, Magnolia, Ruston, and Sunsweet soils. Now, the soil material that remains is grayish brown to red, and its texture ranges from loamy fine sand to clay. In some places the gullies have undercut areas of very friable soil material and have caused the surrounding soils to cave in. The slope in areas of Gullied land ranges from as little as 5 percent to as much as 25 percent, but in most places it is between 10 and 17 percent.

Areas of this land type are small and are widely distributed throughout the county. They range from 2 to about 10 acres in size.

In the more clayey areas of Gullied land, runoff is very rapid and internal drainage is slow. Water infiltrates slowly.

This land type is no longer suitable for field crops or pasture. Some of the areas are being reforested, either naturally or by planting. In areas where gullies are still active, diversion ditches need to be constructed to carry runoff water away from the heads of the gullies and into areas that have a better ground cover. (Capability unit VIIe-19; woodland suitability group 13; Coastal Plain Hills range site.)

Hyde Series

The Hyde series consists of extremely acid soils that are very poorly drained. The soils are in depressions and in nearly level areas that are only a few feet above sea level. They developed in thick beds of clay, silty clay, and very fine sandy loam and in sediments that accumulated in the depressions.

The surface layer of the Hyde soils is thick and black, and it contains a large amount of organic matter. The subsoil is dark colored and clayey. The Hyde soils are not mapped separately in this county but are mapped in an undifferentiated soil group with the Bayboro soils and Muck.

Hyde and Bayboro soils and Muck (Hb).—Areas of this undifferentiated mapping unit consist of all, or only one or two, of the Hyde, Bayboro, and Muck soils because mapping the three soils separately is impractical. In some areas one soil is dominant. Generally, about 80 percent of an area consists of Muck; 10 percent, of Hyde soils; and 10 percent, of Bayboro soils.

The soils are in low areas or in depressions. They receive water as the result of overflow or seepage from adjacent, higher lying areas.

The Hyde soils have a mucky surface layer that is nearly black and is 10 to 18 inches thick. The surface layer of the Bayboro soils is also nearly black, but it contains much less organic matter than that of the Hyde soils. Muck is made up of organic material to a variable depth of 1 to 6 feet.

These soils are extremely acid, very poorly drained, and nearly level. They are saturated, and water stands on them much of the time.

The natural vegetation on these soils is cypress, slash pine, gum, and bay trees. The understory is myrtle, titi, and gallberry.

The following describes a typical profile of the Hyde loam in this mapping unit:

A_1—0 to 18 inches, black (10YR 2/1) mucky loam; moderate, medium, granular structure; sticky; extremely acid; diffuse, smooth boundary.

B_2—18 to 36 inches, black (10YR 2/1) silty clay loam; moderate, medium, subangular blocky structure; sticky; extremely acid; diffuse, smooth boundary.

The following describes a typical profile of the Bayboro loam in this mapping unit:

A—0 to 4 inches, black (10YR 2/1) loam; moderate, medium, granular structure; slightly plastic; extremely acid; diffuse, wavy boundary.

B_{1g}—4 to 7 inches, very dark gray (10YR 3/1) silty clay loam; few, fine, distinct, red mottles; moderate, medium, granular structure; very plastic; very strongly acid; diffuse, wavy boundary.

B_{2g}—7 to 16 inches, very dark gray (10YR 3/1) clay loam; massive; very plastic; very strongly acid; diffuse, wavy boundary.

C_g—16 to 52 inches, dark-gray (10YR 4/1) clay loam; massive; very strongly acid.

The following describes a typical profile of the Muck in this mapping unit:

0 to 42 inches, black (10YR 2/1) muck; structureless; sticky when wet; extremely acid; abrupt, smooth boundary.

42 to 50 inches +, dark-gray (10YR 4/1) sandy clay; massive; very plastic; extremely acid.

In the areas of Muck, the mineral soil material below the organic material ranges from compacted loamy sand to clay. In places there is an overwash of sandy loam to silt loam.

Because of their wetness and the hazard of overflow, the soils in this mapping unit are unsuitable for cultivated crops and in most areas are unsuitable for improved pasture. Nearly all of the acreage is in trees, but a small part is in improved pasture. (Capability unit VIIw-11; woodland suitability group 13; Swamps range site.)

Irvington Series

The Irvington series consists of moderately deep, moderately well drained soils that are strongly acid or very strongly acid. The soils developed in clay loam to sandy

clay loam on uplands. They have iron concretions throughout the profile and have a moderately developed fragipan. Their slope ranges from 0 to 5 percent.

The surface layer of these soils is very dark grayish-brown loam. Their subsoil is brownish-yellow to yellowish-brown sandy clay loam or clay loam.

The Irvington soils are associated with the Marlboro, Tifton, Robertsdale, and Grady soils. They are less well drained that the Tifton and Marlboro soils, which do not have a fragipan. In addition, they contain iron concretions, which are lacking in the Marlboro soils. The Irvington soils are better drained that the Robertsdale and Grady soils.

The natural vegetation on the Irvington soils is longleaf pine, slash pine, loblolly pine, gallberry, sweetgum, and oak.

Irvington loam, 0 to 2 percent slopes (IrA).—This moderately deep, moderately well drained soil is on uplands. The following describes a profile in a moist, cultivated area 2 miles southeast of Robertsdale (SE¼SE¼ sec. 9, T. 6 S., R. 4 E.):

A_p—0 to 8 inches, very dark grayish-brown (2.5Y 3/2), gray (N 6/0, dry), loam; weak, medium, crumb structure; very friable; a few iron concretions ¼ to ½ inch in diameter; strongly acid; abrupt, smooth boundary.

B_1—8 to 10 inches, light yellowish-brown (2.5Y 6/4) heavy fine sandy loam; weak, fine, subangular blocky structure; very friable; common iron concretions ¼ to ½ inch in diameter; strongly acid; clear, smooth boundary.

B_2—10 to 26 inches, brownish-yellow (10YR 6/8) fine sandy clay loam; few, fine, distinct mottles of strong brown (7.5YR 5/8); weak, medium, subangular blocky structure; friable when moist, slightly hard when dry; many concretions ⅛ to ¼ inch in diameter; strongly acid; clear, wavy boundary.

B_{3m}—26 to 48 inches, yellowish-brown (10YR 5/8) fine sandy clay loam; many, medium, distinct mottles of light yellowish brown (2.5Y 6/4); common, medium, distinct mottles of strong brown (7.5YR 5/8); and few, fine mottles of red (2.5YR 5/8); massive to weak, medium, subangular blocky structure; friable or firm when moist, very hard when dry; common, fine to medium, firm peds that have red interiors and yellowish-brown exteriors; very strongly acid; gradual, wavy boundary.

C—48 to 60 inches, strong-brown (7.5YR 5/8), thin layers of sandy clay loam and sandy clay; common, medium, distinct mottles of red (2.5YR 4/8) and few, medium, distinct mottles of light gray (10YR 7/1) and yellowish brown (10YR 5/8); massive; firm when moist, very hard when dry; very strongly acid.

The surface layer of this soil is very dark grayish brown to very dark gray. In most places there are many iron concretions on the surface. The number of concretions on the surface and in the profile, however, ranges from few to many within short distances. The concretions range from ⅛ inch to 1 inch in diameter.

Mapped with this soil are a few areas that have a surface layer of fine sandy loam or very fine sandy loam. These areas are too small to be mapped separately.

Irvington loam, 0 to 2 percent slopes, is low in fertility and medium in content of organic matter. Its capacity for storing available moisture is moderate, permeability is slow, and runoff is slow. The soil responds well to good management, particularly if adequate amounts of fertilizer are added.

This soil can be used for a number of different kinds of crops, but planting, cultivating, and harvesting may be delayed after long rainy periods. About 75 percent of this soil is cultivated; the rest is in trees and pasture. (Capability unit IIw–16; woodland suitability group 8; Coastal Plain Flatwoods range site.)

Irvington loam, 2 to 5 percent slopes (IrB).—This soil has stronger slopes than Irvington loam, 0 to 2 percent slopes, but the hazard of erosion is slight. It has medium runoff and a moderate capacity for storing available moisture.

Most of this soil is in trees, but some of the acreage is used for cultivated crops and pasture. (Capability unit IIe–16; woodland suitability group 8; Coastal Plain Flatwoods range site.)

Iuka Series

The Iuka series consists of deep, moderately well drained soils that are strongly acid or very strongly acid. The soils developed in sandy and clayey alluvium and are on the flood plains of streams. Their slope is between 0 and 2 percent.

The surface layer of these soils is dark-brown silt loam. It is underlain by dark yellowish-brown silty clay mottled with gray and yellowish brown.

The Iuka soils occur on high areas along the channels of streams and are associated with the Mantachie soils and with Wet clayey alluvial land. The Iuka soils are better drained than the associated soils, and they are flooded less frequently and for shorter periods of time.

The natural vegetation on the Iuka soils is red oak, sweetgum, ironwood, white oak, and hickory.

Iuka silt loam (Iu).—This is the only Iuka soil mapped in the county. The following describes a profile in a moist, wooded area:

A_1—0 to 11 inches, dark-brown (10YR 3/3) silt loam; moderate, medium, granular structure; friable; mica flakes; very strongly acid; gradual, wavy boundary.

C_1—11 to 36 inches, dark yellowish-brown (10YR 3/4) silty clay; few, fine, distinct mottles of yellowish brown (10YR 5/8) and gray (10YR 5/1); moderate, medium, subangular blocky structure; very firm; mica flakes; very strongly acid; gradual, wavy boundary.

C_2—36 to 42 inches, dark yellowish-brown (10YR 3/4) silt loam; many, coarse, prominent mottles of gray (10YR 5/1) and yellowish brown (10YR 5/6); weak, fine, subangular blocky structure; friable; mica flakes; very strongly acid.

The surface layer of this soil ranges from grayish brown to dark brown. Below it, the soil material varies in texture; it is stratified in some places, and the layers consist of loamy sand, sandy loam, and silty clay loam.

Mapped with this soil are a few areas that have a surface layer of fine sandy loam. These areas are too small to be mapped separately.

Iuka silt loam is high in natural fertility and medium in content of organic matter. The capacity for storing available moisture is moderate, and permeability is slow. Water infiltrates slowly. This soil has slow runoff. It is subject to flooding, but the floodwaters remain for only short periods.

This soil is one of the most productive in the county, but its use is somewhat limited by the hazard of flooding. About 80 percent of the acreage is in trees, 15 percent is in pasture, and 5 percent is in cultivated crops. (Capability unit IIw–12; woodland suitability group 9; Coastal

Plain Bottom Lands (Canebreaks-Hardwoods) range site.)

Izagora Series

The Izagora series consists of moderately deep, moderately well drained soils that are strongly acid. The soils are on terraces along streams of the Coastal Plain. They developed in old, sandy alluvium that overlies clayey alluvium. Their slope ranges from 0 to 5 percent, but in most places it is between 2 and 5 percent.

The surface layer of these soils is dark grayish-brown very fine sandy loam. Their subsoil is light yellowish-brown fine sandy clay loam, and their substratum is highly mottled sandy clay to clay.

The Izagora soils are along the major creeks in the county, and they are associated with the Kalmia, Myatt, Flint, and Wahee soils. The Izagora soils are not so well drained as the Kalmia soils, but they are better drained than the Myatt soils. They are more sandy, more friable, and more yellowish than the Flint soils, and their subsoil is more sandy than that of the Wahee soils.

The natural vegetation on the Izagora soils is mainly slash pine, loblolly pine, and longleaf pine, but there are some gums, hickories, and oaks.

Izagora very fine sandy loam, 2 to 5 percent slopes (IzB).—This moderately deep, moderately well drained soil is on terraces along streams. The following describes a profile in a moist, wooded area (NW¼NW¼ sec. 29, T. 6 S., R. 6 E.):

A_1—0 to 3 inches, dark grayish-brown (2.5Y 4/2) very fine sandy loam; weak, fine, crumb structure; very friable; strongly acid; clear, wavy boundary.

A_2—3 to 9 inches, light olive-brown (2.5Y 5/4) very fine sandy loam; fine, crumb structure; very friable; strongly acid; gradual, wavy boundary.

A_{22}—9 to 15 inches, pale-olive (5YR 6/4) fine sandy loam; few, very fine, faint, yellowish-brown mottles; weak, fine, crumb structure; very friable; strongly acid; gradual, wavy boundary.

B_{21}—15 to 20 inches, light yellowish-brown (2.5Y 6/4) light fine sandy clay loam; weak, fine, subangular blocky structure; very friable; strongly acid; gradual, wavy boundary.

B_{22}—20 to 26 inches, light yellowish-brown (2.5Y 6/4) fine sandy clay loam; few, fine, faint, yellowish-brown mottles; weak, fine, subangular blocky structure; friable; strongly acid; clear, wavy boundary.

B_3—26 to 30 inches, pale-olive (5YR 6/4) light fine sandy clay; common, medium, distinct, yellowish-brown mottles; weak, fine, subangular blocky structure; friable; strongly acid; gradual, wavy boundary.

C_1—30 to 33 inches, pale-olive (5Y 6/3) fine sandy clay; common, medium, distinct mottles of yellowish brown and common, medium, faint mottles of olive gray; massive; firm; strongly acid; clear, wavy boundary.

C_{2g}—33 to 52 inches, gray (5Y 6/1) clay; massive; very firm; strongly acid.

The surface layer of this soil ranges from dark grayish brown to dark gray.

Mapped with this soil are a few areas that have a surface layer of silt loam. Also included are areas that have a dense, hard layer, or pan, at a depth of about 24 to 28 inches. These included areas resemble the Savannah soils of the uplands. The areas are too small to be mapped separately.

Izagora very fine sandy loam, 2 to 5 percent slopes, is low in natural fertility and in content of organic matter. Water infiltrates at a moderate rate. Permeability is moderate in the B horizon and slow in the C horizon. Runoff is medium, and the capacity for storing available moisture is moderate to low. The soil is easily tilled. There is a slight hazard of erosion.

This soil is limited to some extent by the slight hazard of erosion as well as by the slight need for drainage. It can be used for cultivated crops if an adequate system to dispose of excess water is installed. All of this soil is in trees, and some of the areas have been cut over. (Capability unit IIe-16; woodland suitability group 6; Coastal Plain Flatwoods range site.)

Izagora very fine sandy loam, 0 to 2 percent slopes (IzA).—This soil is finer textured throughout than Izagora very fine sandy loam, 2 to 5 percent slopes, and its surface layer is darker. The subsoil is paler, mottles are nearer the surface, and depth to the heavy substratum is less. This soil is nearly level, and there is no hazard of erosion. Runoff is slower and the need for drainage is greater than on the steeper Izagora soils.

This soil is well suited to trees and pasture. It can be used for cultivated crops if an adequate system to dispose of excess water is installed. All of the acreage is wooded. (Capability unit IIw-16; woodland suitability group 6; Coastal Plain Flatwoods range site.)

Kalmia Series

The Kalmia series consists of deep, moderately well drained or well drained soils that are medium acid or strongly acid. The soils developed in old alluvium that has a texture of loamy sand to sandy clay, and they are on the terraces of streams. Their slope ranges from 0 to 5 percent, but in most places it is between 2 and 5 percent.

The surface layer of these soils is light yellowish-brown to dark grayish-brown fine sandy loam. Their subsoil is yellow to yellowish-brown sandy clay loam.

The Kalmia soils are associated with the Cahaba, Myatt, Leaf, Izagora, Wahee, and Flint soils. They are more sandy than the Cahaba soils, and their subsoil is yellow to yellowish brown rather than yellowish red. They are more sandy and better drained than the Flint, Wahee, Izagora, Leaf, and Myatt soils.

The natural vegetation on the Kalmia soils is mainly longleaf pine, shortleaf pine, and loblolly pine. There are a few oaks, sweetgums, and blackgums.

Kalmia fine sandy loam, 0 to 2 percent slopes (KaA).—This deep, well-drained soil is on terraces along streams. The following describes a profile in a moist, cultivated area:

A_1—0 to 4 inches, light brownish-gray (2.5Y 6/2) fine sandy loam; moderate, medium, granular structure; loose or very friable; medium acid; gradual, wavy boundary.

A_2—4 to 7 inches, grayish-brown (2.5Y 5/2) fine sandy loam; weak, medium, granular structure; loose or very friable; strongly acid; clear, wavy boundary.

A_3—7 to 13 inches, yellow (2.5Y 7/6) fine sandy loam; weak, fine, subangular blocky structure; very friable; medium acid; gradual, wavy boundary.

B_1—13 to 19 inches, brownish-yellow (10YR 6/6) coarse sandy clay loam; weak, medium, subangular blocky structure; friable; gradual, wavy boundary.

B_{21}—19 to 37 inches, yellow (10YR 7/8) coarse sandy clay loam; weak, medium, subangular blocky structure; friable; strongly acid; gradual, wavy boundary.

B_{22}—37 to 41 inches, yellowish-brown (10YR 5/8) sandy clay loam; weak, medium, subangular blocky structure; friable; medium acid; gradual, wavy boundary.

C_1—41 to 50 inches, yellowish-brown (10YR 5/8) sandy clay loam; common, fine, faint mottles of strong brown and pale yellow; moderate, medium, subangular blocky structure; friable; strongly acid; gradual, wavy boundary.

C_2—50 inches +, mottled pale-yellow and yellowish-brown loamy sand; few, fine, distinct mottles; single grain; medium acid.

The surface layer of this soil ranges from light yellowish brown to dark grayish brown or light brownish gray. The subsoil is yellow to yellowish brown, and its texture ranges from light sandy clay loam to heavy sandy clay loam.

Mapped with this soil are a few areas where the surface layer is loamy sand. These areas are too small to be mapped separately.

Kalmia fine sandy loam, 0 to 2 percent slopes, is low in natural fertility and medium in content of organic matter. Permeability is moderate, and the rate of infiltration is moderate. Runoff is slow, and the capacity for storing available moisture is low to moderate. There is no hazard of erosion.

This soil is suited to general farm crops, pasture, and trees. About 60 percent of the acreage is in cultivated crops, 20 percent is in pasture, and 20 percent is in trees. (Capability unit I–12; woodland suitability group 5; Coastal Plain Flatwoods range site.)

Kalmia fine sandy loam, 2 to 5 percent slopes (KaB).—This soil has a thinner solum than Kalmia fine sandy loam, 0 to 2 percent slopes, and the capacity for storing available moisture is lower. Runoff is medium, and water infiltrates more slowly.

This soil is somewhat limited in its use for crops by the moderate slope, medium rate of runoff, and slight hazard of erosion. If the soil is used for cultivated crops, management practices need to be applied moderately intensively to protect it from erosion. About an equal acreage is used for trees, pasture, and cultivated crops. (Capability unit IIe–12; woodland suitability group 5; Coastal Plain Flatwoods range site.)

Klej Series

The Klej series consists of deep, moderately well drained soils that are strongly acid or very strongly acid. The soils developed in loamy sand and loamy fine sand on uplands. Their slope ranges from 0 to 8 percent, but in most places it is between 0 and 5 percent.

The surface layer of these soils is dark grayish-brown loamy fine sand. It is underlain by light yellowish-brown, mottled loamy fine sand.

The Klej soils are mainly near Elberta and Summerdale, and they are associated with the Lakeland, Goldsboro, Scranton, and Plummer soils. Their texture is similar to that of the Lakeland, Scranton, and Plummer soils, but they are less well drained than the Lakeland soils and are better drained than the Scranton. The Klej soils are much better drained than the Plummer soils. Their drainage is similar to that of the Goldsboro soils, but they have more sand throughout the profile.

The natural vegetation on the Klej soils is longleaf pine, slash pine, loblolly pine, scrub oak, gum, and sassafras.

Klej loamy fine sand, 0 to 5 percent slopes (KlB).—This deep, moderately well drained soil is on uplands. The following describes a profile in a moist pasture about 3 miles north of Foley (SE¼NE¼ sec. 17, T. 7 S., R. 4 E.):

A_p—0 to 6 inches, dark grayish-brown (2.5Y 4/2) loamy fine sand; weak, fine, crumb structure; very friable; many fine grass roots; strongly acid; abrupt, smooth boundary.

AC—6 to 18 inches, light yellowish-brown (2.5Y 6/4) loamy fine sand; weak, fine, crumb structure; very friable; strongly acid or very strongly acid; gradual, wavy boundary.

C_1—18 to 34 inches, light yellowish-brown (2.5Y 6/4) loamy fine sand; few, fine, distinct mottles of yellowish brown (10YR 5/8) and light gray (10YR 7/2); single grain; very friable; strongly acid or very strongly acid; gradual, wavy boundary.

C_2—34 to 52 inches, mottled yellowish-brown (10YR 5/8), light-gray (10YR 7/2), and light yellowish-brown (2.5Y 6/4) loamy fine sand; many, coarse, distinct mottles; single grain; very friable.

The surface layer of this soil ranges from olive or gray to dark grayish brown. Just below the surface layer, the soil material is pale olive to yellowish brown and the texture ranges from loamy sand to loamy very fine sand. The texture of the substratum ranges from loamy sand to sandy loam. In some places the soil material is slightly compacted at a depth below 30 inches.

Mapped with this soil are a few areas where the surface layer is sand or loamy very fine sand. These areas are too small to be mapped separately.

Klej loamy fine sand, 0 to 5 percent slopes, is very low in natural fertility and low in content of organic matter. Its capacity for storing available moisture is low, and permeability is rapid. Water infiltrates rapidly. Runoff is slow, and there is little or no hazard of erosion. The soil responds fairly well to good management, particularly if adequate amounts of fertilizer are added.

This soil is fairly well suited to cultivated crops and is well suited to trees and pasture. Its use for cultivated crops is limited by moderate drainage, rapid permeability, and susceptibility to leaching. About 40 percent of the acreage is in trees, 30 percent is in pasture, and the rest is in tilled crops. (Capability unit IIIs–11; woodland suitability group 3; Coastal Plain Flatwoods range site.)

Klej loamy fine sand, 5 to 8 percent slopes (KlC).—This soil has stronger slopes and more rapid runoff than Klej loamy fine sand, 0 to 5 percent slopes. The hazard of erosion is slight to moderate. The soil receives a fairly large amount of runoff from higher, better drained soils.

This soil is probably best suited to trees or pasture. If it is used for cultivated crops, slightly more intensive management practices are needed. The soil is used mainly for trees, but a small acreage is used for pasture. (Capability unit IVs–11; woodland suitability group 3; Coastal Plain Flatwoods range site.)

Lakeland Series

The Lakeland series consists of deep, excessively drained soils that are strongly acid or very strongly acid. The soils developed in thick sand and loamy sand and are on uplands. Their slope ranges from 0 to 17 percent, but in most places it is between 0 and 5 percent.

The surface layer of these soils is grayish-brown to very dark grayish-brown loamy fine sand. It is underlain by

brownish-yellow to dark yellowish-brown loamy fine sand. The loamy fine sand overlies finer textured material at a depth of 30 to 120 inches or more.

The Lakeland soils occur throughout the county. These soils are associated with the Eustis, Klej, Norfolk, Bowie, Tifton, and Cuthbert soils. The texture of the Lakeland soils is similar to that of the Eustis and Klej soils. The soil material below the surface layer, however, is brownish yellow or yellowish brown instead of yellowish red like that of the Eustis soils or mottled like that of the Klej soils. The Lakeland soils are also better drained than the Klej. The Lakeland soils are much more sandy to a depth of 30 inches or more than the Norfolk, Bowie, Tifton, and Cuthbert soils.

The natural vegetation on the Lakeland soils is mainly longleaf pine and loblolly pine. The understory is blackjack oak, bluejack oak, post oak, turkey oak, water oak, and dogwood. The principal kind of tree used to reforest areas of these soils is slash pine.

Lakeland loamy fine sand, 0 to 5 percent slopes (LaB).—This deep, excessively drained soil is on uplands. The following describes a profile in a moist, wooded area (NW¼NW¼ sec. 22, T. 6 S., R. 4 E.):

A_1—0 to 2 inches, dark grayish-brown (10YR 4/2) loamy fine sand; weak, fine, crumb structure; loose; strongly acid; clear, wavy boundary.

A_3—2 to 8 inches, light yellowish-brown (10YR 6/4) loamy fine sand; single grain; loose; strongly acid; gradual, wavy boundary.

C_1—8 to 18 inches, brownish-yellow (10YR 6/6) loamy fine sand; single grain; loose; strongly acid; gradual, wavy boundary.

C_2—18 to 72 inches +, yellowish-brown (10YR 5/8) loamy fine sand; single grain; loose; strongly acid.

The surface layer of this soil ranges from grayish brown or dark grayish brown to dark gray. In places where the soil adjoins the Tifton soils, a few iron concretions are on the surface and in the profile.

Mapped with this soil are areas where the texture throughout the solum is sand, loamy sand, or very fine loamy sand. Also included are areas, mainly in the northern part of the county, where gravel is on the surface and in the profile. In addition, there are some nearly level areas that are adjacent to streams. All of these areas are too small to be mapped separately.

Lakeland loamy fine sand, 0 to 5 percent slopes, is low or very low in natural fertility and in content of organic matter. Its capacity for storing available moisture is low or very low, and permeability is rapid. Water infiltrates rapidly and runoff is slow. There is a slight hazard of erosion in areas where the slope is between 2 and 5 percent. Tilth is good.

This soil is probably best suited to crops grown during the winter and spring months when there is more rainfall than at other seasons of the year. Crops grown in summer sometimes give satisfactory yields if rainfall is sufficient and is properly distributed. This soil is of limited use for cultivated crops because it is rapidly permeable, excessively drained, susceptible to leaching, and low in moisture-holding capacity. About 60 percent of the acreage is in trees, 20 percent is in pasture, and 20 percent is in tilled crops. (Capability unit IIIs–11; woodland suitability group 1; Coastal Plain Sands range site.)

Lakeland loamy fine sand, 5 to 8 percent slopes (LaC).—This soil has stronger slopes than Lakeland loamy fine sand, 0 to 5 percent slopes. Runoff is medium. The hazard of erosion is slight to moderate.

Mapped with this soil are a few areas that have shallow to deep gullies. These areas are too small to be mapped separately.

Lakeland loamy fine sand, 5 to 8 percent slopes, has the same limitations as Lakeland loamy fine sand, 0 to 5 percent slopes. It is further limited in its use for crops, however, by the medium runoff and the slight to moderate hazard of erosion. About 80 percent of the acreage is in trees, 15 percent is in pasture, and the rest is in cultivated crops. (Capability unit IVs–11; woodland suitability group 1; Coastal Plain Sands range site.)

Lakeland loamy fine sand, 8 to 12 percent slopes (LaD).—This soil has much stronger slopes than Lakeland loamy fine sand, 0 to 5 percent slopes, and more rapid runoff. The hazard of erosion is moderate to severe.

Mapped with this soil are a few areas that have gullies. Also included are some areas that have large outcrops of sandstone boulders. These areas are too small to be mapped separately.

Lakeland loamy fine sand, 8 to 12 percent slopes, is probably best suited to trees. Areas that have been cleared can be used for pasture if they are managed carefully. This soil has the same limitations as Lakeland loamy fine sand, 0 to 5 percent slopes, but it is further limited in its use for crops by medium runoff and the moderate to severe hazard of erosion. Nearly all of the acreage is wooded, but some of it is used for pasture. (Capability unit VIs–11; woodland suitability group 1; Coastal Plain Sands range site.)

Lakeland loamy fine sand, 12 to 17 percent slopes (LaE).—This soil has much stronger slopes than Lakeland loamy fine sand, 0 to 5 percent slopes, and it has rapid runoff. The hazard of erosion is severe.

Mapped with this soil are some areas that have deep, caving gullies and other areas that have large outcrops of sandstone rock. Also included are areas where the soil material below the surface layer is yellowish-red to red loamy sand.

Lakeland loamy fine sand, 12 to 17 percent slopes, is probably best suited to trees. This soil has the same limitations as Lakeland loamy fine sand, 0 to 5 percent slopes, but it is further limited in its use for crops by medium runoff and a serious hazard of erosion. All of the acreage is wooded. (Capability unit VIIs–11; woodland suitability group 1; Coastal Plain Sands range site.)

Lakewood Series

The Lakewood series consists of deep, excessively drained soils that are very strongly acid. The soils developed in thick sand on uplands. Their slope ranges from 0 to 5 percent.

The surface layer of these soils is gray sand, and it is underlain by light-gray sand. The solum overlies yellowish-brown sand at a depth of 4 feet or more.

The Lakewood soils occur mainly in areas near the beaches that extend along the entire southern part of the county. They are associated with areas of the St. Lucie-Leon-Muck complex. The lower part of their solum is yellowish brown rather than white or light gray like that of the St. Lucie soils. The Lakewood soils are excessively drained instead of poorly drained like the Leon soils of

very poorly drained like Muck. They also lack the distinct pan, cemented with organic matter, that is in the Leon soils.

The Lakewood soils have little or no value for agriculture. They are used mainly as sites for summer homes.

The natural vegetation on these soils is mainly slash pine and sand pine. The understory is sandmyrtle, rosemary, gallberry, palmetto, and cactus.

Lakewood sand, 0 to 5 percent slopes (LkB).—This is the only Lakewood soil mapped in the county. The soil is deep and excessively drained, and it is on uplands. The following describes a profile in a moist, wooded area (NW¼NW¼ sec. 16, T. 9 S., R. 4 E.):

A_1—0 to 4 inches, gray (2.5Y 5/0) sand that has a salt-and-pepper appearance; single grain; loose; common fibrous roots; very strongly acid; clear, wavy boundary.

A_2—4 to 28 inches, light-gray (2.5Y 7/0) sand; single grain; loose; very strongly acid; clear, wavy boundary.

C_1—28 to 54 inches, yellowish-brown (10YR 5/8) sand; single grain; loose; gradual, wavy boundary.

C_2—54 to 62 inches, dark yellowish-brown (10YR 4/4) sand streaked with dark brown (7.5YR 3/2); single grain; loose; very thin, discontinuous pan cemented with organic matter; very strongly acid; gradual, wavy boundary.

C_3—62 to 72 inches +, light olive-brown (2.5Y 5/4) sand; single grain; loose; very strongly acid.

The surface layer of this soil ranges from white to gray, and its depth ranges from 2 to 30 inches within short distances. Below the surface layer, the soil material is yellowish brown to light olive brown and has a texture of fine sand to coarse sand.

This soil is low in natural fertility and in content of organic matter. It has very rapid permeability, and its capacity for storing available moisture is low. Water infiltrates rapidly. Runoff is slow, and there is no hazard of erosion.

This soil is limited to use for homesites and trees by its sandy texture and very rapid permeability. Nearly all of it is used as a resort area and as sites for summer cottages. None of it is cultivated. (Capability unit VIs-12; woodland suitability group 2; Coastal Plain Sands range site.)

Leaf Series

The Leaf series consists of deep, poorly drained soils on terraces along streams. The soils developed in old alluvium of clay and silty clay texture. Their slope ranges from 0 to 2 percent.

The surface layer of these soils is dark grayish-brown silt loam. Their subsoil is mottled silty clay.

The Leaf soils are in the northwestern part of the county. They are associated with the Flint, Wahee, and Myatt soils, and in places they are mapped with the Flint and Wahee soils. The Leaf soils are more poorly drained than the Flint and Wahee soils, and they are finer textured than the Myatt soils.

The natural vegetation on the Leaf soils is slash pine, shortleaf pine, water oak, white oak, red oak, hickory, and sweetgum.

Leaf silt loam (Lm).—This deep, poorly drained soil is on terraces along streams. The following describes a profile in a moist, wooded area 1 mile east of Dixie Landing in the northwestern part of the county:

A_1—0 to 2 inches, dark grayish-brown (2.5Y 4/2) silt loam; weak, fine, granular structure; friable; strongly acid; abrupt, smooth boundary.

B_{1g}—2 to 17 inches, mottled gray (2.5Y 5/0) and olive-yellow (2.5Y 6/6) silty clay; mottles are coarse and prominent; moderate, medium, subangular blocky structure; firm; very strongly acid; gradual, wavy boundary.

B_{2g}—17 to 40 inches, mottled gray (2.5Y 5/0), light olive-brown (2.5Y 5/6), and red (2.5Y 5/8) clay; mottles are coarse and prominent; massive; very firm; very strongly acid.

The surface layer of this soil is dark grayish brown to light gray, and its texture ranges from silt loam to very fine sandy loam. The surface layer is as much as 8 inches thick.

This soil is low in natural fertility and in content of organic matter. Its capacity for storing available moisture is low to moderate, and permeability is very slow. Water infiltrates very slowly. Runoff is very slow, and there is no hazard of erosion.

This soil is limited in its suitability for crops by its poor drainage and very slow permeability. All of it is wooded. (Capability unit IVw-11; woodland suitability group 4; Coastal Plain Flatwoods range site.)

Leon Series

The Leon series consists of moderately deep, poorly drained, nearly level soils that are extremely acid. The soils developed in thick sand on uplands. Their slope ranges from 0 to 2 percent.

The surface layer of these soils is very dark gray to black sand. The upper part of their subsoil is white to gray sand. In the lower part of the subsoil is a dark-brown, sandy, dense layer, or pan, that is cemented with organic matter.

The Leon soils are only in the extreme southern part of the county, where they are associated with Muck and with the Lakewood and St. Lucie soils. They are much more poorly drained than the Lakewood and St. Lucie soils, and they lack the thick layer of decomposed organic matter that is common to Muck.

The natural vegetation on the Leon soils is longleaf pine and slash pine. The understory is saw-palmetto, runner oak, gallberry, and wiregrass.

Leon sand (Ls).—This is the only Leon soil mapped separately in the county. This soil is moderately deep, poorly drained, and nearly level, and it is in depressions in the uplands. The following describes a profile in a wet, wooded area, 1 mile west of Gulf Shores (NW¼NW¼ sec. 16, T. 9 S., R. 4 E.):

A_1—0 to 2 inches, very dark gray (10YR 3/1) sand; single grain; nonsticky when wet; extremely acid; abrupt, smooth boundary.

A_{21}—2 to 18 inches, gray (2.5Y 5/0) sand; single grain; nonsticky when wet; extremely acid; gradual, wavy boundary.

A_{22}—18 to 30 inches, white (2.5Y 8/0) to light-gray (2.5Y 7/0) sand; single grain; nonsticky when wet; extremely acid; abrupt, wavy boundary.

B_{2h}—30 to 40 inches, dark-brown (10YR 3/3) sand; structureless; pan cemented with organic matter; hard when dry, very friable when moist, nonsticky when wet; extremely acid.

C_1—40 inches +, dark-gray to gray sand; very strongly acid.

The surface layer of this soil is very dark gray to black. Depth to the pan that is cemented with organic matter ranges from 15 to 30 inches, and the thickness of the pan ranges from 2 to 15 inches. In some places there are three or four pans in the profile, separated by layers of loose, gray sand.

Mapped with this soil are areas that have 5 to 10 inches of muck over the sandy surface layer. These areas are too small to be mapped separately.

Leon sand is very low in fertility and low in content of organic matter. The capacity for storing available moisture is very low, permeability is slow to rapid, and runoff is very slow. Water infiltrates rapidly.

This soil is probably best suited to trees because of its low natural fertility, poor drainage, and sandy texture. A high water table keeps it saturated throughout most of the year. All of the acreage is wooded. (Capability unit Vw-11; woodland suitability group 11; Coastal Plain Flatwoods range site.)

Local Alluvial Land

This miscellaneous land type consists of sediments that have been carried by small streams that flow out of tiny drainage basins. In places it consists of nearly homogeneous rock and soil material that have been deposited at the base of slopes. The deposits are too recent for a soil profile to have developed.

Local alluvial land (Lv).—This land type consists of deep deposits of alluvial material on small bottoms or in small depressions in the uplands. The soil material is moderately well drained or well drained and has washed from areas of nearby, higher lying soils. It is strongly acid or very strongly acid, and its texture ranges from loamy fine sand to sandy clay loam, depending on the texture of the adjacent soils. The slope ranges from 0 to 2 percent.

The soil material in the upper part of this land type generally consists of grayish-brown to dark reddish-brown loamy fine sand to silt loam. That in the lower part is yellowish-brown to red loamy fine sand to sandy clay loam.

This land type is moderate to high in natural fertility. It contains a medium amount of organic matter.

This land type is suitable for cultivated crops, pasture, and trees. It is subject to occasional flooding for short periods. The areas are commonly used the same as the adjacent soils, but some areas are used for vegetated waterways. About 60 percent of the acreage is in trees, 25 percent is in pasture, and the rest is in cultivated crops.

The natural vegetation on Local alluvial land is slash pine, longleaf pine, loblolly pine, blackgum, oak, ash, and hickory. (Capability unit IIw-11; woodland suitability group 9; Coastal Plain Bottom Lands (Canebreaks-Hardwoods) range site.)

Lynchburg Series

The Lynchburg series consists of deep, somewhat poorly drained soils that are strongly acid or very strongly acid. The soils developed in sandy loam to sandy clay loam and are on uplands. Their slope ranges from 0 to 8 percent, but in most places it is between 0 and 2 percent.

The surface layer of these soils is gray to black fine sandy loam. Their subsoil is pale yellow to olive yellow and is mottled.

The Lynchburg soils are near Elberta, Summerdale, and Foley, where they are associated with the Goldsboro, Rains, Plummer, Scranton, and Klej soils. They have a texture similar to that of the Goldsboro and Rains soils, but they are not so well drained as the Goldsboro soils and are better drained than the Rains. The Lynchburg soils are finer textured throughout than the Plummer, Scranton, and Klej soils.

The natural vegetation on the Lynchburg soils is largely longleaf pine, slash pine, and loblolly pine. The understory consists of gallberry bushes, dogwoods, briers, and wiregrass.

Lynchburg fine sandy loam, 0 to 2 percent slopes (LyA).—This is a deep, somewhat poorly drained soil of the uplands. The following describes a profile in a moist, wooded area:

A_1—0 to 2 inches, gray (2.5Y 5/0) fine sandy loam; weak, fine, crumb structure; very friable; many fine roots; strongly acid; abrupt, wavy boundary.

A_3—2 to 10 inches, pale-yellow (2.5Y 8/4) fine sandy loam; weak, fine, crumb structure; very friable; many fine roots; very strongly acid; gradual, wavy boundary.

B_1—10 to 18 inches, olive-yellow (2.5Y 6/6) fine sandy loam; few, fine, distinct mottles of light gray (2.5Y 7/0); weak, fine, subangular blocky structure; very friable; very strongly acid; gradual, wavy boundary.

B_{2g}—18 to 42 inches, mottled light-gray (10YR 7/1) and olive-yellow (2.5Y 6/8) sandy loam; mottles are coarse and distinct; weak, fine, subangular blocky structure; friable; very strongly acid.

The color of the surface layer ranges from gray to black. In some places the subsoil is mottled with olive yellow, but in most places it is mottled with gray. The texture of the subsoil ranges from sandy loam to sandy clay loam. In places there are iron concretions on the surface and in the profile.

Mapped with this soil are areas that have a surface layer of loamy fine sand to very fine sandy loam. These areas are too small to be mapped separately.

Lynchburg fine sandy loam, 0 to 2 percent slopes, is low in natural fertility and in content of organic matter. Its capacity for storing available moisture is low to moderate, and the soil is moderate in permeability. The rate of infiltration is also moderate. This soil has very slow runoff and a high water table. There is little or no hazard of erosion.

Use of this soil for crops is limited by its somewhat poor drainage, low moisture-holding capacity, and high water table. About 50 percent of the acreage is in trees, 35 percent is in pasture, and the rest is in cultivated crops. (Capability unit IIw-17; woodland suitability group 6; Coastal Plain Flatwoods range site.)

Lynchburg fine sandy loam, 2 to 5 percent slopes (LyB).—This soil has more rapid runoff than Lynchburg fine sandy loam, 0 to 2 percent slopes. There is a slight hazard of erosion.

This soil has the same limitations as Lynchburg fine sandy loam, 0 to 2 percent slopes, but it is further limited in its use for crops by medium runoff and a slight hazard of erosion. Nearly all of the acreage is wooded, but some of it is in pasture and a small acreage is in cultivated

crops. (Capability unit IIe–16; woodland suitability group 6; Coastal Plain Flatwoods range site.)

Lynchburg fine sandy loam, 5 to 8 percent slopes (LyC).—The profile of this soil is like that of Lynchburg fine sandy loam, 0 to 2 percent slopes, but the C horizon is generally much finer textured. Also, in places fragments of sandstone cemented with iron occur throughout the profile. The soil also has more rapid runoff, and there is a greater amount of seepage. The hazard of erosion is slight to moderate.

This soil is probably best suited to pasture, but it is also well suited to trees. The soil is difficult to work because of its poor drainage, seepage, and rather strong slope. Nearly all of it is wooded. (Capability unit IIIe–16; woodland suitability group 6; Coastal Plain Flatwoods range site.)

Made Land

This miscellaneous land type consists of areas that have been artificially excavated and filled for use as sites for commercial buildings or residences. The soil profiles have been so altered by earthmoving equipment that the land is no longer arable.

Made land (Ma).—This land type consists mainly of a layer of gray sand that is 3 to 6 feet thick. The sand, pumped from Mobile Bay and from the channels of streams, was spread over areas of Tidal marsh or Swamp. The areas of Made land are mainly along the causeway and are used as building sites.

One island along the causeway consists of material pumped from nearby areas that are covered by water. Several small areas of this land type are within the boundaries of airfields. In those areas the land was leveled and low spots were filled with soil material of a number of different textures and colors. (Capability unit VIIIs–11; woodland suitability group 12; not placed in a range site.)

Magnolia Series

The Magnolia series consists of deep, well-drained soils that are strongly acid or very strongly acid. The soils developed in unconsolidated beds of clay loam and sandy clay loam on uplands of the Coastal Plain. Their slope ranges from 0 to 8 percent, but in most places it is between 0 and 2 percent.

The surface layer of these soils is dark-brown to very dark grayish-brown fine sandy loam. Their subsoil is red sandy clay loam to clay loam.

The Magnolia soils are mainly near Belforest, and they are associated with the Greenville, Faceville, Red Bay, Orangeburg, and Marlboro soils. Their surface layer is less reddish than that of the Greenville and Red Bay soils, and their subsoil is a lighter red. Their subsoil is more reddish than that of the Faceville and Marlboro soils. The Magnolia soils are more clayey throughout than the Orangeburg and Red Bay soils. Their subsoil, especially, is more clayey.

The natural vegetation on the Magnolia soils consists of longleaf pine and several kinds of oaks.

Magnolia fine sandy loam, 0 to 2 percent slopes (MgA).—This deep, well-drained soil is on uplands. The following describes a profile in a moist, cultivated area (SW¼NE¼ sec. 35, T. 4 S., R. 2 E.):

A_p—0 to 7 inches, dark-brown (10YR 3/3) fine sandy loam; weak, fine, crumb structure; friable; strongly acid; abrupt, smooth boundary.

B_1—7 to 11 inches, dark yellowish-brown (10YR 4/4) sandy clay loam; weak, fine, subangular blocky structure; friable; very strongly acid; gradual, wavy boundary.

B_{21}—11 to 23 inches, red (2.5YR 4/8) fine sandy clay loam; weak, fine, subangular blocky structure; friable; very strongly acid; gradual, wavy boundary.

B_{22}—23 to 54 inches, red (10R 4/8) sandy clay loam or clay loam; weak, fine, subangular blocky structure; friable or firm; very strongly acid; gradual, wavy boundary.

B_3—54 to 66 inches +, red (10R 4/8) fine sandy clay loam; few, fine, faint, yellow (10YR 8/6) mottles; weak, fine, subangular blocky structure; friable; very strongly acid.

The color of the surface layer ranges from dark brown to very dark grayish brown. The texture of the subsoil ranges from sandy clay loam to sandy clay. In places there are a few, small iron concretions on the surface and in the profile.

Mapped with this soil are a few areas where the surface layer has a texture of sandy loam or very fine sandy loam. These areas are too small to be mapped separately.

Magnolia fine sandy loam, 0 to 2 percent slopes, is low in natural fertility and medium in content of organic matter. The capacity for storing available moisture is moderate, and permeability is moderate. Water infiltrates slowly. Runoff is slow, and there is little or no hazard of erosion.

This soil has no limitations. It is easily worked and responds well to good management, particularly if adequate amounts of fertilizer are added. Most of the acreage is in cultivated crops, but a small acreage is in trees or pasture. (Capability unit I–11; woodland suitability group 5; Coastal Plain Hills range site.)

Magnolia fine sandy loam, 2 to 5 percent slopes (MgB).—The surface layer of this soil is generally grayish brown. Runoff is more rapid than on Magnolia fine sandy loam, 0 to 2 percent slopes, and there is a slight hazard of erosion.

This soil is limited in its use for crops by its moderate slope, medium rate of runoff, and slight hazard of erosion. Most of the acreage is wooded, but a small part of it is in pasture or in cultivated crops. (Capability unit IIe–11; woodland suitability group 5; Coastal Plain Hills range site.)

Magnolia fine sandy loam, 2 to 5 percent slopes, eroded (MgB2).—This soil has a thinner surface layer than Magnolia fine sandy loam, 0 to 2 percent slopes, and water infiltrates more slowly. From 25 to 75 percent of the original surface layer has been lost through erosion. The present surface layer is a mixture of fine sandy loam from the original surface layer and of yellowish-brown sandy clay loam from the upper part of the subsoil. Runoff is medium on this soil, and there is a moderate hazard of further erosion.

Use of this soil for cultivated crops is limited by erosion, the moderate slope, medium rate of runoff, and the moderate hazard of further erosion. Nearly all of the acreage is in pasture. (Capability unit IIe–11; woodland suitability group 5; Coastal Plain Hills range site.)

Magnolia fine sandy loam, 5 to 8 percent slopes, eroded (MgC2).—This soil has a thinner solum than Magnolia fine sandy loam, 0 to 2 percent slopes. From 25 to 75 percent of the original surface layer has been lost through erosion. The present surface layer is a mixture

of fine sandy loam from the original surface layer and of yellowish-brown sandy clay loam from the upper part of the subsoil.

This soil has a slower rate of infiltration than Magnolia fine sandy loam, 0 to 2 percent slopes. Its capacity for storing available moisture is also lower, runoff is medium, and there is a moderate hazard of erosion.

Mapped with this soil are a few areas that are not eroded. Also included are areas where all of the original surface layer has been lost through erosion and the present surface layer is red fine sandy clay loam from the former subsoil. These areas are too small to be mapped separately.

Use of Magnolia fine sandy loam, 5 to 8 percent slopes, eroded, for cultivated crops is limited by the medium runoff, low rate of infiltration, low moisture-holding capacity, present erosion, and the moderate hazard of further erosion. All of this soil is in pasture and trees. (Capability unit IIIe-11; woodland suitability group 5; Coastal Plain Hills range site.)

Mantachie Series

The Mantachie series consists of moderately deep, somewhat poorly drained soils that are very strongly acid. The soils developed in alluvium consisting of silty clay deposited by the Mobile and Tensaw Rivers on first bottoms of the Coastal Plain. They receive new material each time the rivers overflow their banks. Their slope is 0 to 2 percent.

The surface layer of these soils is dark grayish brown and ranges from faintly mottled silt loam to silty clay loam. Below the surface layer, the soil material is gray and mottled.

The Mantachie soils are on flood plains of streams, mainly between the Mobile and Tensaw Rivers in the northwestern part of the county. These soils are associated with the Iuka soils and are near areas of Wet clayey alluvial land. They are more poorly drained than the Iuka soils. The Mantachie soils are better drained than Wet clayey alluvial land, and they are more uniform in texture, color, and drainage.

The natural vegetation on the Mantachie soils is mainly sweetgum, water oak, hackberry, ash, and other swamp hardwoods. There are a few longleaf pines on the better drained areas.

Mantachie silt loam (Mn).—This is the only Mantachie soil mapped in the county. The following describes a profile in a moist area under forest:

A_1—0 to 3 inches, dark grayish-brown (10YR 4/2) silt loam; few, fine, distinct mottles of gray; moderate, medium, granular structure; friable; very strongly acid; gradual, wavy boundary.

C_1—3 to 9 inches, dark grayish-brown (10YR 4/2) silty clay; common, fine, distinct mottles of dark brown, gray, and yellowish brown; massive; firm; very strongly acid; gradual, wavy boundary.

C_2—9 to 15 inches, dark grayish-brown (10YR 4/2) silty clay; common, medium, prominent, gray mottles; massive; firm; very strongly acid; gradual, wavy boundary.

C_{3g}—15 to 27 inches, gray (2.5Y 6/0) silty clay; common, medium, distinct mottles of dark brown and yellowish brown; massive; firm; soft, black concretions and mica flakes; very strongly acid; gradual, wavy boundary.

C_{4g}—27 to 37 inches, intensely mottled, gray, dark-brown, and yellowish-brown silty clay or clay; massive; very firm; soft, black concretions and mica flakes; very strongly acid.

The texture of the surface layer ranges from silty clay loam to silt loam. The surface layer is thinner in areas near Wet clayey alluvial land than in other areas. The texture of the soil material below the surface layer is silty clay or clay.

This soil is moderate to high in natural fertility, and it contains a moderate amount of organic matter. Water infiltrates slowly, and permeability is slow or very slow. There is little or no hazard of erosion, but the soils are flooded each year for 2 to 3 months. These soils are fairly difficult to till. The period of time that they can be plowed is very short because they are either too wet or too dry.

Use of this soil is limited to trees and pasture by the fine texture of the surface layer, poor drainage, and the hazard of frequent flooding for long periods. The soil can be used for cultivated crops if it is protected by levees and if drainage ditches are provided to remove excess surface water. All of this soil is in hardwood trees. (Capability unit IVw-11; woodland suitability group 10; Coastal Plain Bottom Lands (Canebreaks-Hardwoods) range site.)

Marlboro Series

The Marlboro series consists of deep, well-drained soils that are medium acid to very strongly acid. The soils developed in thick loam and sandy clay on uplands of the Coastal Plain. Their slope ranges from 0 to 5 percent, but in most places it is between 0 and 2 percent.

The surface layer of these soils ranges from very dark gray or dark grayish-brown to brown very fine sandy loam. Their subsoil is yellowish-brown fine sandy clay loam or loam to clay loam. It is underlain by a substratum of mottled fine sandy clay loam.

The Marlboro soils are mainly in the southern part of the county and are associated with the Norfolk, Tifton, Savannah, and Faceville soils. They have a thinner surface layer than the Norfolk soils, and their subsoil contains more silt and very fine sand. The Marlboro soils, in color and texture, are similar to the Tifton soils, but they lack the thick surface layer and the many small iron concretions that are in the Tifton soils. The Marlboro soils have a texture similar to that of the Savannah soils, but they are better drained and they lack the fragipan that is in the Savannah soils. The B horizon of the Marlboro soils is more yellowish than that of the Faceville soils.

The natural vegetation on the Marlboro soils is longleaf pine, shortleaf pine, loblolly pine, oak, and dogwood.

Marlboro very fine sandy loam, 0 to 2 percent slopes (MrA).—This deep, well-drained soil is on uplands of the Coastal Plain. The following describes a profile in a moist, wooded area (NE¼NW¼NE¼ sec. 9, T. 2 S., R. 3 E.):

A_0—partly decomposed forest litter.

A_1—0 to 4 inches, very dark gray (10YR 3/1) very fine sandy loam; weak, fine, crumb structure; very friable; many fine grass roots; medium acid or strongly acid; smooth, abrupt boundary.

A_3—4 to 8 inches, brown (10YR 5/3) very fine sandy loam; weak, fine, crumb structure; very friable; many fine roots; strongly acid; smooth, clear boundary.

B_2—8 to 32 inches, yellowish-brown (10YR 5/8) fine sandy clay loam; weak, fine, subangular blocky structure; fri-

able; strongly acid or very strongly acid; gradual, wavy boundary.

B_3—32 to 52 inches, yellowish-brown (10YR 5/8) fine sandy clay loam; few, fine, faint mottles of yellow (10YR 8/6); weak, fine, subangular blocky structure; firm; strongly acid or very strongly acid; gradual, wavy boundary.

C—52 to 60 inches +, yellowish-brown (10YR 5/8) fine sandy clay loam; few, fine, faint mottles of yellow (10YR 8/6) and strong brown (7.5YR 5/8); massive; very firm; weakly cemented; strongly acid or very strongly acid; gradual, wavy boundary.

The surface layer of this soil ranges from very dark gray or very dark grayish brown to grayish brown or brown. The subsoil is yellowish brown to strong brown, and its texture ranges from loam or clay loam to fine sandy clay loam. Depth to distinct mottling ranges from 27 to 38 inches. Where this soil is adjacent to the Tifton soils, it contains a few iron concretions; where it is adjacent to the Norfolk soils, the surface layer is thicker and more sandy.

Mapped with this soil are a few areas where the surface layer is loam to sandy loam. Also included are areas that have a strong-brown subsoil. These areas are too small to be mapped separately.

Marlboro very fine sandy loam, 0 to 2 percent slopes, is low in natural fertility and in content of organic matter. Runoff is slow, permeability is moderate to slow, and the capacity for storing available moisture is moderate to high. Water infiltrates slowly. There is a slight to moderate hazard of erosion. Tilth is good, and the soil is easily protected from erosion. It responds well to good management, particularly if adequate amounts of fertilizer are added.

This soil has few limitations and is well suited to truck crops (fig. 9) or other cultivated crops, pasture, and trees. About 75 percent of the acreage is used for tilled crops or pasture; the rest is wooded. (Capability unit I–11; woodland suitability group 5; Coastal Plain Hills range site.)

Marlboro very fine sandy loam, 2 to 5 percent slopes (MrB).—This soil has a thinner solum than Marlboro very fine sandy loam, 0 to 2 percent slopes, and the surface layer is thinner, browner, and more sandy. Runoff is also more rapid, and there is a greater hazard of erosion.

Figure 9.—**A field of Marlboro very fine sandy loam, 0 to 2 percent slopes, used to grow collards. The collards are boxed and are shipped to markets farther north.**

This soil is well suited to cultivated crops, pasture, and trees. If it is cultivated, supplementary practices to control water are needed to protect it from erosion. The soil responds well to good management, particularly if adequate amounts of fertilizer are added. Nearly all of the acreage is wooded. (Capability unit IIe–11; woodland suitability group 5; Coastal Plain Hills range site.)

Marlboro very fine sandy loam, 2 to 5 percent slopes, eroded (MrB2).—This soil has a somewhat thinner solum than Marlboro very fine sandy loam, 0 to 2 percent slopes, and a surface layer that is lighter colored and thinner. The surface layer is grayish-brown to yellowish-brown very fine sandy loam and is 4 to 6 inches thick. It consists of a mixture of material from the original surface layer and from the subsoil. In places all of the original surface layer has been lost through erosion and the present surface layer is yellowish-brown fine sandy clay loam from the former subsoil.

Runoff is more rapid on this soil than on Marlboro very fine sandy loam, 0 to 2 percent slopes. The hazard of erosion is also greater.

If this soil is used for cultivated crops, it will need supplementary practices to control water because surface runoff, if not controlled, can result in serious erosion. The soil will also need to have organic matter added. It responds well to good management, particularly if adequate amounts of fertilizer are added. Nearly all of the acreage is in cultivated crops and pasture, but a small acreage is in pine trees. (Capability unit IIe–11; woodland suitability group 5; Coastal Plain Hills range site.)

Muck

Muck consists of highly decomposed, organic soil material that has developed from peat. Generally, it has a higher content of minerals or ash than peat and is decomposed to the extent that the original plants cannot be identified. In Baldwin County Muck is not mapped separately but is mapped in an undifferentiated soil group with the Hyde and Bayboro soils. For a description of a typical profile of Muck, turn to the description of Hyde and Bayboro soils and Muck, under the Hyde series.

Myatt Series

The Myatt series consists of deep, poorly drained soils that are strongly acid or very strongly acid. The soils developed in sandy loam to sandy clay loam and are on terraces along streams of the Coastal Plain. Their slope is between 0 and 2 percent.

The surface layer of these soils is dark-gray very fine sandy loam. Their subsoil ranges from faintly mottled, gray sandy loam to fine sandy clay loam.

The Myatt soils are along the Fish, Styx, and Blackwater Rivers in the southern one-third of the county and near the Tensaw River in the northwestern part. They are associated with the moderately well drained to well drained Kalmia, the moderately well drained Izagora, and the very poorly drained Okenee soils. The Myatt soils are very similar to the Rains soils, which are on uplands.

The natural vegetation on the Myatt soils is mainly slash pine, longleaf pine, sweetgum, and cypress. The understory is gallberry.

Myatt very fine sandy loam (My).—This is the only Myatt soil mapped in the county. It is a deep, poorly drained soil on terraces along streams. The following describes a profile in a moist, cutover woods 10 miles north of Stockton (SE¼SW¼ sec. 7, T. 2 N., R. 3 E.):

A_1—0 to 4 inches, dark-gray (5Y 4/1) very fine sandy loam with yellowish-brown root stains; weak, fine, crumb structure; friable; strongly acid; clear, smooth boundary.

A_{3g}—4 to 8 inches, gray (2.5Y 5/0) very fine sandy loam; few, fine, distinct mottles of light olive brown (2.5Y 5/6) and reddish brown (5YR 4/4); weak, fine, crumb structure; friable; very strongly acid; gradual, wavy boundary.

B_{1g}—8 to 20 inches, gray (2.5Y 5/0) very fine sandy loam; few, fine, faint mottles of light gray (2.5Y 7/2) and pale yellow (2.5Y 8/4); weak, fine, crumb structure; friable; very strongly acid; gradual, wavy boundary.

B_{2g}—20 to 32 inches, gray (2.5Y 6/0) sandy clay loam; many, medium, distinct mottles of yellow (2.5Y 7/6) and yellowish red (5YR 5/8); weak, fine, subangular blocky structure; friable; very strongly acid; gradual, wavy boundary.

C_{1g}—32 to 40 inches, heavy sandy clay loam with many, coarse, distinct mottles of gray (7.5YR 5/0), yellow (10YR 7/6), and yellowish red (5YR 4/6); massive; firm; very strongly acid; gradual, wavy boundary.

C_{2g}—40 to 52 inches +, clay with many, coarse, prominent mottles of gray (7.5YR 5/0), yellow (10YR 7/8), and strong brown (7.5YR 5/6); massive; firm; very strongly acid.

The surface layer of this soil ranges from light gray to dark gray. The subsoil is light gray or gray, and its texture ranges from fine sandy loam to very fine sandy clay loam. The texture of the substratum ranges from loamy fine sand to clay.

Mapped with this soil are a few areas that have a surface layer of loamy very fine sand to silt loam. These areas are too small to be mapped separately.

Myatt very fine sandy loam is very low in fertility and low in content of organic matter. Its capacity for storing available moisture is low, and permeability is slow. Water infiltrates slowly. Runoff is very slow, and there is little or no hazard of erosion.

Use of this soil for cultivated crops is limited by the high water table, poor drainage, slow permeability, and low moisture-holding capacity. Nearly all of the acreage is in trees, but a small acreage is used for pasture. (Capability unit IVw-11; woodland suitability group 4; Coastal Plain Flatwoods range site.)

Norfolk Series

The Norfolk series consists of deep, well-drained soils that are strongly acid or very strongly acid. The soils developed in sandy loam and sandy clay loam on uplands of the Coastal Plain. Their slope ranges from 0 to 8 percent, but in most places it is between 2 and 5 percent.

The surface layer of these soils is very dark grayish-brown, dark grayish-brown, or grayish-brown sandy loam. Their subsoil is yellowish-brown sandy loam, loam, or sandy clay loam.

The Norfolk soils are mainly near Elberta, where they are associated with the Ruston, Goldsboro, Lakeland, Klej, Lynchburg, and Marlboro soils. Their subsoil is yellowish brown rather than yellowish red or strong brown like that of the Ruston soils. The Norfolk soils are better drained than the Goldsboro and Lynchburg soils. Their subsoil is finer textured than that of the Lakeland and Klej soils, and it is coarser textured than that of the Marlboro soils. The surface layer of the Norfolk soils is thicker than that of the Marlboro soils.

The natural vegetation on the Norfolk soils is mainly longleaf pine, shortleaf pine, and loblolly pine. There are also some sweetgums, oaks, and holly trees.

Norfolk fine sandy loam, 2 to 5 percent slopes (NoB).—This is a deep, well-drained soil on uplands of the Coastal Plain. The following describes a profile in a moist, cultivated area (NW¼SE¼ sec. 9, T. 6 S., R. 3 E.):

A_p—0 to 6 inches, dark grayish-brown (10YR 4/2) fine sandy loam or loamy sand; weak, fine, crumb structure; very friable; a few iron concretions one-fourth inch in diameter; numerous fine roots; strongly acid; clear, smooth boundary.

A_3—6 to 9 inches, yellowish-brown (10YR 5/6) light fine sandy loam; weak, fine, crumb structure; a few iron concretions one-fourth inch in diameter; numerous fine roots; very friable; strongly acid or very strongly acid; gradual, wavy boundary.

B_1—9 to 19 inches, yellowish-brown (10YR 5/8) fine sandy loam; weak, fine, subangular blocky structure; friable; a few iron concretions one-fourth inch in diameter; very strongly acid; gradual, wavy boundary.

B_2—19 to 32 inches, yellowish-brown (10YR 5/8) heavy fine sandy loam; weak, medium, subangular blocky structure; friable; a few iron concretions one-fourth inch in diameter; very strongly acid; gradual, wavy boundary.

B_3—32 to 47 inches, yellowish-brown (10YR 5/8) sandy clay loam; few, fine, faint, yellow (10YR 8/6) mottles; weak, medium, subangular blocky structure; friable; a few iron concretions one-fourth inch in diameter; very strongly acid.

C—47 to 60 inches, sandy clay loam mottled with light gray (10YR 7/1), yellow (10YR 8/6), and yellowish brown (10YR 5/8); massive; compact, but friable; a few iron concretions one-fourth inch in diameter; very strongly acid.

The surface layer of this soil is grayish brown to very dark grayish brown. The B horizon is brownish yellow to yellowish brown, and its texture ranges from coarse sandy loam to fine sandy clay loam. The texture of the substratum ranges from sandy loam to sandy clay. In places a cemented layer is at a depth of 45 to 50 inches. The number of iron concretions ranges from few to none. In some places there are a few quartz pebbles throughout the profile.

Mapped with this soil are a few areas where the surface layer is loamy fine sand to sandy loam. These areas are too small to be mapped separately.

Norfolk fine sandy loam, 2 to 5 percent slopes, is low in natural fertility and in content of organic matter. Its capacity for storing available moisture is moderate to low, permeability is variable, and runoff is slow. Water infiltrates at a moderate rate. This soil is easily tilled, and it is fairly easy to protect from erosion. It responds very well to applications of fertilizer and organic matter.

This soil is suited to all of the crops commonly grown in the county, but it is not widely used for Irish potatoes. About 30 percent of the acreage is in cultivated crops, and the rest is wooded. (Capability unit IIe-12; woodland suitability group 5; Coastal Plain Hills range site.)

Norfolk fine sandy loam, 0 to 2 percent slopes (NoA).—This soil has a thicker surface layer and thicker solum than Norfolk fine sandy loam, 2 to 5 percent slopes. Runoff is slower, and the capacity for storing available moisture is higher. There is less hazard of erosion.

The soil is suited to the same crops as Norfolk fine sandy loam, 2 to 5 percent slopes. It responds well to good management, particularly if adequate amounts of fertilizer are added. A large part of the acreage is in cultivated crops. (Capability unit I–12; woodland suitability group 5; Coastal Plain Hills range site.)

Norfolk fine sandy loam, 2 to 5 percent slopes, eroded (NoB2).—This soil has a thinner surface layer than Norfolk fine sandy loam, 2 to 5 percent slopes. The moisture-holding capacity is lower, and runoff is more rapid. The hazard of erosion is also greater. The present surface layer is a mixture of material from the original surface layer and the upper part of the subsoil. It is more yellowish brown and is finer textured than the original one.

This soil is suited to all of the crops commonly grown in the county. If used for cultivated crops, it requires a system to dispose of excess water and practices to prevent further erosion. Large amounts of organic matter also need to be added. To get the maximum response from the applications of fertilizer, this soil should be kept in sod crops about one-half of the time. (Capability unit IIe–12); woodland suitability group 5; Coastal Plain Hills range site.)

Norfolk fine sandy loam, 5 to 8 percent slopes (NoC).—This soil has a thinner solum than Norfolk fine sandy loam, 2 to 5 percent slopes. Its moisture-holding capacity is also lower, and runoff is more rapid. The hazard of erosion is moderate to severe.

Mapped with this soil are a few areas where the surface layer is a mixture of material from the original surface layer and the upper part of the subsoil. These areas are too small to be mapped separately.

Norfolk fine sandy loam, 5 to 8 percent slopes, is suited to most of the cultivated crops commonly grown in the county. It is especially well suited to sod crops and small grains. If cultivated crops are grown, the soil needs a system that will dispose of excess water and practices that will protect it from erosion. If maximum response from the applications of fertilizer are to be obtained, sod crops need to be grown about two-thirds of the time. Nearly all of the acreage is wooded. (Capability unit IIIe–12; woodland suitability group 5; Coastal Plain Hills range site.)

Okenee Series

The Okenee series consists of deep, very poorly drained soils that are very strongly acid or extremely acid. The soils developed in old alluvium of sandy loam to silty clay texture and are on terraces along streams of the Coastal Plain. Their slope is 0 to 2 percent.

The surface layer of these soils is black silt loam to sandy loam. Their subsoil is dark-gray silty clay loam.

The Okenee soils are mainly along the Fish, Styx, and Blackwater Rivers in the southern half of the county. They are associated with the well drained Kalmia, the moderately well drained Izagora, the poorly drained Myatt, and the very poorly drained Okenee soils. The Okenee soils are similar to the Hyde soils, but they are on terraces rather than on first bottoms or in depressions.

The natural vegetation on the Okenee soils is mainly longleaf pine, slash pine, and loblolly pine. The understory is gallberry.

Okenee soils (Ok).—These are the only Okenee soils mapped in the county. They are deep, very poorly drained soils on terraces along streams. The following describes a profile in a moist, wooded area:

A_{11}—0 to 7 inches, black (10YR 2/1) silt loam; weak, fine, crumb structure; very friable when moist, slightly sticky when wet; extremely acid; diffuse boundary.

A_{12}—7 to 16 inches, black (5Y 2/1) silt loam; weak, fine, granular structure; very friable when moist, sticky when wet; extremely acid; clear, wavy boundary.

B_2—16 to 22 inches, very dark gray (5Y 3/1) silty clay loam; weak, medium, subangular blocky structure; friable or firm when moist, sticky when wet; very strongly acid; gradual, wavy boundary.

B_{3g}—22 to 37 inches, dark-gray (5Y 4/1) silty clay loam; few, fine, distinct mottles of strong brown (7.5YR 5/6); weak, medium, subangular blocky structure; firm when moist, sticky when wet; very strongly acid.

C_g—37 to 48 inches +, dark-gray (5Y 4/1) silty clay; few, fine, distinct mottles of yellowish brown (10YR 5/8); moderate, medium, subangular blocky structure; firm when moist, plastic when wet; very strongly acid.

The surface layer of these soils is very dark gray to black. The subsoil is light gray to dark gray, and its texture ranges from sandy loam to silty clay loam. In places the substratum is loamy sand.

These soils are low in natural fertility, but they are high in content of organic matter. Their capacity for storing available moisture is moderate, and permeability is slow to moderate. Water infiltrates slowly. Runoff is very slow, and the soils are sometimes ponded for short periods during rainy seasons.

These soils are probably best suited to trees. They can be used for pasture if they are drained enough to remove the surface water. All of the acreage is wooded. (Capability unit IIIw–11; woodland suitability group 4; Coastal Plain Flatwoods range site.)

Orangeburg Series

The Orangeburg series consists of deep, well-drained soils that are strongly acid or very strongly acid. The soils developed in sandy loam and sandy clay loam on uplands of the Coastal Plain. Their slope ranges from 0 to 12 percent, but in most places it is between 0 and 2 percent.

The surface layer of these soils is dark grayish-brown to dark-brown fine sandy loam. Their subsoil is red or dark-red heavy sandy loam to sandy clay loam.

The Orangeburg soils are associated with the Red Bay, Ruston, and Magnolia soils. In texture they are similar to the Red Bay and Ruston soils, but their B_1 horizon is less reddish than that of the Red Bay soils, and their B_2 horizon is more reddish than that of the Ruston soils. The Orangeburg soils are similar to the Magnolia soils in color, but their surface layer is thicker and more sandy, and their subsoil is coarser textured.

The natural vegetation on the Orangeburg soils is longleaf pine, shortleaf pine, loblolly pine, oak, sweetgum, and holly.

Orangeburg fine sandy loam, 0 to 2 percent slopes (OrA).—This deep, well-drained soil is on uplands. The following describes a profile in a moist, cultivated area

one-half mile south of Robertsdale (NW¼SE¼ sec. 7, T. 6 S., R. 4 E.):

A_p—0 to 10 inches, dark grayish-brown (10YR 4/2) fine sandy loam; weak, fine, crumb structure; very friable; strongly acid; abrupt, smooth boundary.

A_3—10 to 15 inches, dark yellowish-brown (10YR 4/4) fine sandy loam; weak, fine, crumb structure; very friable; very strongly acid; gradual, wavy boundary.

B_1—15 to 27 inches, red (2.5YR 4/8) heavy sandy loam; weak, fine, subangular blocky structure; friable; very strongly acid; gradual, wavy boundary.

B_{21}—27 to 56 inches, dark-red (2.5YR 3/6) sandy clay loam; weak, fine, subangular blocky structure; friable or firm; very strongly acid; gradual, wavy boundary.

B_{22}—56 to 66 inches +, dark-red (2.5YR 3/6) light sandy clay loam; weak, fine, subangular blocky structure; friable; very strongly acid.

The color of the A horizon ranges from dark brown (10YR 3/3) to dark grayish brown (10YR 4/2). The B_2 horizon is red (2.5YR 4/8) to dark red (10R 3/6), and its texture ranges from light sandy clay loam to sandy clay loam.

Mapped with this soil are a few areas where the surface layer is loamy sand. These areas are too small to be mapped separately.

Orangeburg fine sandy loam, 0 to 2 percent slopes, is low in natural fertility and low to medium in content of organic matter. The soil is well drained, but water infiltrates at a moderate rate. Permeability is moderate and surface runoff is slow. The capacity for storing available moisture is moderate to low.

This soil is suited to all of the crops commonly grown in the county. It has no limitations, and it responds well to applications of fertilizer and organic matter. About 70 percent of the acreage is in cultivated crops, 10 percent is in pasture, and 20 percent is in trees. (Capability unit I–12; woodland suitability group 5; Coastal Plain Hills range site.)

Orangeburg fine sandy loam, 2 to 5 percent slopes (OrB).—The surface layer of this soil is grayish brown. Runoff is more rapid than on Orangeburg fine sandy loam, 0 to 2 percent slopes, and there is a slight hazard of erosion.

This soil is suited to pastures of bahiagrass, Coastal bermudagrass, and other deep-rooted plants. It is also suited to crimson clover and ryegrass, which are suitable for grazing in winter. The greatest limitations of this soil are the moderate slope and the slight hazard of erosion. If used for cultivated crops, the soil requires a system to dispose of excess water and practices to prevent erosion. About equal acreages are used to grow cultivated crops, pasture, and trees. (Capability unit IIe–12; woodland suitability group 5; Coastal Plain Hills range site.)

Orangeburg fine sandy loam, 2 to 5 percent slopes, eroded (OrB2).—This soil has a surface layer that is more yellowish and somewhat finer textured than that of Orangeburg fine sandy loam, 0 to 2 percent slopes. Runoff is also more rapid, and there is a slight to moderate hazard of further erosion. From 25 to 75 percent of the original surface layer has been lost through erosion. The present surface layer is a mixture of material from the original surface layer and the upper part of the subsoil.

This soil is suited to deep-rooted pasture plants, to grasses that are suitable for grazing in winter, and to legumes. It is limited by its moderate slope, present erosion, and the slight to moderate hazard of further erosion. If this soil is used for cultivated crops, a system to dispose of excess water and practices to prevent further erosion are required. To get the maximum response from the applications of fertilizer, the soil should be kept in sod crops about one-half of the time. About half of the acreage is in pasture, and about half is in cultivated crops. (Capability unit IIe–12; woodland suitability group 5; Coastal Plain Hills range site.)

Orangeburg fine sandy loam, 5 to 8 percent slopes (OrC).—This soil has a thinner solum than Orangeburg fine sandy loam, 0 to 2 percent slopes. Runoff is more rapid, and the hazard of erosion is moderate.

This soil is suited to pastures of bahiagrass and Coastal bermudagrass. It is also suited to crimson clover and other legumes and to ryegrass, oats, and other grasses suitable for grazing in winter. It is limited in its use for tilled crops by its strong slope and the moderate hazard of erosion. If used for cultivated crops, this soil requires a system that will dispose of excess water and intensive practices that will prevent erosion. Nearly all of it is wooded. (Capability unit IIIe–12; woodland suitability group 5; Coastal Plain Hills range site.)

Orangeburg fine sandy loam, 8 to 12 percent slopes, eroded (OrD2).—This soil has more rapid runoff than Orangeburg fine sandy loam, 0 to 2 percent slopes, and the hazard of further erosion is serious. From 25 to 75 percent of the original surface layer has been lost through erosion. The present surface layer is yellowish red and consists of a mixture of material from the original surface layer and the upper part of the subsoil. In places there are gullies.

Mapped with this soil are a few areas where the slope is as much as 17 percent. These areas are too small to be mapped separately.

Orangeburg fine sandy loam, 8 to 12 percent slopes, eroded, is suited to pastures of bahiagrass, Coastal bermudagrass, and other deep-rooted plants. It is also suited to those grasses and legumes suitable for grazing in winter, such as crimson clover, ryegrass, and oats.

This soil is limited in its use for cultivated crops by its strong slope, present erosion, and the hazard of further erosion. It responds fairly well to good management, particularly if adequate amounts of fertilizer are added. If this soil is used for cultivated crops, it requires a system that will dispose of excess water and intensive practices that will prevent further erosion. Sod crops need to be grown about three-fourths of the time in the rotation to add organic matter and to protect the soil from further erosion. About equal acreages are used for cultivated crops and pasture. (Capability unit IVe–15; woodland suitability group 5; Coastal Plain Hills range site.)

Plummer Series

The Plummer series consists of deep, poorly drained soils that are very strongly acid. The soils developed in loamy sand and sand and are on uplands. Their slope ranges from 0 to 12 percent, but in most places it is between 0 and 5 percent.

The surface layer of these soils is gray to black loamy sand. Below the surface layer, the soil material is mottled, gray loamy sand. The loamy sand overlies highly mottled sandy clay loam to clay.

The Plummer soils are along drainageways and are mainly in the southern one-third of the county. They are associated with the Klej and Scranton soils, but they are more poorly drained than those soils. Their drainage is the same as that of the Rains soils, but they have more sand throughout the profile. The Plummer soils lack the layer of dark-colored organic matter that is typical of Muck.

Nearly all of the acreage of Plummer soils is idle or covered with pitcherplants, gallberry bushes, and grasses. There is a sparse growth of slash pine and cypress, and in places there are bay and gum trees.

Plummer loamy sand, 0 to 5 percent slopes (PmB).—This deep, poorly drained soil is on uplands. The following describes a profile in a moist, wooded area 2 miles north of Dyas (SE¼SE¼ sec. 4, T. 1 S., R. 4 E.):

A_0—partly decomposed forest litter.

A_1—0 to 4 inches, dark-gray (5Y 4/1) loamy sand; weak, fine, crumb structure; very friable, nonsticky; abundant fine roots; strongly acid or very strongly acid; clear, smooth boundary.

C_{1g}—4 to 16 inches, gray (5Y 5/1) loamy sand; few, fine, distinct, yellow (5Y 7/8) mottles; weak, fine, crumb structure; very friable, nonsticky; many fine roots; very strongly acid; gradual, wavy boundary.

C_{2g}—16 to 52 inches, light-gray (5Y 7/1) loamy sand; common, fine, distinct mottles of yellow (5Y 7/8) and strong brown (7.5YR 5/8); weak, fine, crumb structure; very friable, nonsticky; abundant fine roots; very strongly acid; abrupt, wavy boundary.

D_{1g}—52 to 64 inches, mottled strong-brown (7.5Y 5/8), light-gray (5Y 7/1), and yellow (5Y 8/8) sandy clay loam; massive; firm, slightly sticky; very strongly acid; abrupt, smooth boundary.

D_{2g}—64 to 96 inches +, mottled light-gray (5Y 7/1), yellow (5Y 8/8), and strong-brown (7.5YR 5/8) clay; massive; extremely firm, very sticky; a few iron concretions one-fourth inch in diameter; very strongly acid.

The surface layer of this soil is dark gray or black. Below the surface layer is light-gray to dark-gray coarse sand to loamy fine sand.

Mapped with this soil are areas where the surface layer is sand or loamy very fine sand. These areas are too small to be mapped separately.

Plummer loamy sand, 0 to 5 percent slopes, is very low in natural fertility and in content of organic matter. Its capacity for storing available moisture is low, and it has rapid permeability. Water infiltrates slowly. The soil has very slow runoff and a high water table. There is little or no hazard of erosion.

This soil is probably the least suitable for agriculture of any soil in the county. Limiting its use for crops are its low fertility, poor drainage, low moisture-holding capacity, rapid permeability, and high water table. Nearly all of the acreage is idle or is thinly wooded. (Capability unit Vw-11; woodland suitability group 4; Coastal Plain Flatwoods range site.)

Plummer loamy sand, 5 to 12 percent slopes (PmC).—This soil has more rapid runoff than Plummer loamy sand, 0 to 5 percent slopes, and there is a slight to moderate hazard of erosion. The subsoil is generally coarse sand. The banks of drainage ditches through areas of this soil have a tendency to slough away, and their maintenance can be a problem.

Unless it is drained, this soil is too wet for pines to grow well. It can be used for pasture if the areas are carefully prepared and if adequate amounts of fertilizer are added frequently. At present, all of the acreage is idle or is very thinly wooded. (Capability unit Vw-11; woodland suitability group 4; Coastal Plain Flatwoods range site.)

Rains Series

The Rains series consists of deep, poorly drained soils that are very strongly acid. The soils developed in sandy loam to sandy clay loam on uplands of the Coastal Plain. They occur in seep areas at the base of slopes and in slight depressions along drainageways. Their slope ranges from 0 to 8 percent, but in most places it is between 0 and 5 percent.

The surface layer of these soils is gray to dark-gray fine sandy loam. Their subsoil is gray fine sandy loam and is underlain by slowly permeable fine sandy clay loam.

The Rains soils are in the southern and eastern parts of the county and are associated with the Plummer and Lynchburg soils. They are finer textured throughout than the Plummer soils, and they are more poorly drained than the Lynchburg soils. The Rains soils are similar to the Myatt soils, but they occur on uplands, and the Myatt soils, on stream terraces.

The natural vegetation on the Rains soils consists of pitcherplants, grasses, sedges, cypresses, gums, slash pines, and pond pines.

Rains fine sandy loam, 0 to 2 percent slopes (RaA).—This deep, poorly drained soil is on uplands. The following describes a profile in a moist pasture 5 miles northeast of Robertsdale (NW¼SW¼ sec. 25, T. 5 S., R. 4 E.):

A_{1p}—0 to 9 inches, dark-gray (10YR 4/1) fine sandy loam; few, fine, distinct, brown (10YR 5/3) mottles; weak, fine, crumb structure; friable; many fine roots; very strongly acid; gradual, wavy boundary.

B_{2g}—9 to 29 inches, gray (5Y 5/1) fine sandy loam; common, fine, distinct mottles of light olive brown (2.5Y 5/4) and strong brown (7.5YR 5/8); weak, medium, subangular blocky structure; friable; few fine roots; very strongly acid; gradual, wavy boundary.

B_{3g}—29 to 42 inches, gray (10YR 5/1) fine sandy clay loam; few, fine, distinct mottles of brownish yellow (10YR 6/8); weak, medium, subangular blocky structure; friable; many old root channels coated with brown; very strongly acid; clear, wavy boundary.

C_{1g}—42 to 70 inches, brownish-yellow (10YR 6/8) fine sandy clay; common, fine, distinct mottles of light gray (10YR 7/1), strong brown (7.5YR 5/8), and yellowish red (5YR 4/8); weak, medium, subangular blocky structure; friable; few fine roots; very strongly acid; gradual, wavy boundary.

The surface layer of this soil is gray to very dark gray. The color of the subsoil ranges from light gray to dark gray, and its texture, from sandy loam to fine sandy clay loam. Mottling ranges from faint to prominent.

Mapped with this soil are areas where the surface layer is very fine sandy loam to loam. Also included are areas that have a surface layer of black, mucky loam. All of these areas are too small to be mapped separately.

Rains fine sandy loam, 0 to 2 percent slopes, is very low in natural fertility and low to medium in content of organic matter. Its capacity for storing available moisture is low to moderate, and runoff is very slow. Water infiltrates slowly. Most of the time the soil is saturated with water from seepage areas. There is little or no hazard of erosion.

This soil is probably best suited to range or pasture. It is limited in its use for cultivated crops by its poor drainage, low to moderate moisture-holding capacity, and slow or very slow permeability. Nearly all of the acreage is in native grasses, cypresses, pine trees, and pitcherplants, but a small acreage is in pasture. (Capability unit IVw–11; woodland suitability group 4; Coastal Plain Flatwoods range site.)

Rains fine sandy loam, 2 to 5 percent slopes (RaB).—This soil has medium runoff, and the hazard of erosion is slight. In addition, it has the same limitations as Rains fine sandy loam, 0 to 2 percent slopes. Nearly all of the acreage is in native grasses, but there are scattered cypresses, pines, and pitcherplants. A small acreage is in pasture. (Capability unit IVw–11; woodland suitability group 4; Coastal Plain Flatwoods range site.)

Rains fine sandy loam, 5 to 8 percent slopes (RaC).—This soil has medium runoff. There is a slight to moderate hazard of erosion.

Mapped with this soil are a few areas where the slope is as much as 12 percent. These areas are too small to be mapped separately.

Rains fine sandy loam, 5 to 8 percent slopes, has the same limitations as Rains fine sandy loam, 0 to 2 percent slopes, in addition to the slight to moderate hazard of erosion. It is thinly wooded with cypress and slash pine. The understory consists of grass, gallberry bushes, and pitcherplants. (Capability unit IVw–11; woodland suitability group 4; Coastal Plain Flatwoods range site.)

Red Bay Series

The Red Bay series consists of deep, well-drained soils that are very strongly acid. The soils developed in unconsolidated sandy loam and sandy clay loam on uplands of the Coastal Plain. Their slope ranges from 0 to 5 percent, but in most places it is between 0 and 2 percent.

The surface layer of these soils is dark-brown or dark reddish-brown fine sandy loam. Their subsoil is red to dark-red sandy loam to sandy clay loam.

The Red Bay soils are mainly near Belforest, where they are associated with the Greenville, Ruston, and Orangeburg soils. In color, their surface layer and subsoil are similar to those of the Greenville soils, but they have more sand throughout the profile. Their surface layer is more reddish than that of the Ruston or Orangeburg soils, and their subsoil is red or dark red rather than yellowish red like that the of the Ruston soils.

The natural vegetation on the Red Bay soils is longleaf pine and oak.

Red Bay fine sandy loam, 0 to 2 percent slopes (RbA).—This deep, well-drained soil is on uplands. The following describes a profile in a moist, cultivated area 3½ miles northwest of Silverhill (NW¼SW¼ sec. 33, T. 5 S., R. 3 E.):

A_p—0 to 7 inches, dark-brown (7.5YR 3/2) to dark reddish-brown (5YR 3/2) fine sandy loam; weak, fine, crumb and weak, fine subangular blocky structure; very friable; many fine roots; some material in wormholes and holes made by roots; very strongly acid; abrupt, smooth boundary.

A_3—7 to 15 inches, dark reddish-brown (5YR 3/4) fine sandy loam, weak, fine, subangular blocky and weak, fine, crumb structure; very friable; wormholes and holes made by roots filled with material from the A_p horizon; very strongly acid; gradual, smooth boundary.

B_{21}—15 to 21 inches, dark-red (2.5YR 3/6) sandy loam to light sandy clay loam; weak, fine and medium, subangular blocky structure; friable; few fine pores; few fine roots; wormholes; coarse quartz grains; very strongly acid; gradual, smooth boundary.

B_{22}—21 to 33 inches, dark-red (2.5YR 3/6) light sandy clay loam; weak, fine and medium, subangular blocky structure; friable, very strongly acid; gradual, smooth boundary.

B_{23}—33 to 50 inches, dark-red (2.5YR 3/6) sandy clay loam; weak, fine and medium, subangular blocky structure; friable; very strongly acid; gradual, smooth boundary.

C—50 to 80 inches +, dark-red (2.5YR 3/6) sandy loam; weak, fine, subangular blocky and weak, fine, granular structure; friable; very strongly acid.

The surface layer of this soil ranges from dark brown to dark reddish brown. The texture of the subsoil ranges from sandy loam to sandy clay loam. The texture and thickness of the surface layer and the texture of the subsoil are closely related. The surface layer is thickest in the areas where it contains the most sand. The subsoil contains more sand in areas where the surface layer is also sandy.

Mapped with this soil are a few areas that have a surface layer of loamy fine sand or sandy loam. Also included are areas where the surface layer is thin because of erosion. These areas are too small to be mapped separately.

Red Bay fine sandy loam, 0 to 2 percent slopes, is low in fertility and low to medium in content of organic matter. The capacity for storing available moisture is low to moderate, and permeability is moderate to rapid. Water infiltrates at a moderate rate, and runoff is slow. The soil is easy to work and to protect from erosion. It responds well to good management, particularly if adequate amounts of fertilizer are added.

This soil has no serious limitations and can be used for cultivated crops, pasture (fig. 10), or trees. About 70 percent of the acreage is in cultivated crops, 10 percent is in pasture, and 20 percent is wooded. (Capability unit I–12; woodland suitability group 5; Coastal Plain Hills range site.)

Figure 10.—**A field of Red Bay fine sandy loam, 0 to 2 percent slopes, used to grow small grains.**

Red Bay fine sandy loam, 2 to 5 percent slopes (RbB).—Although the surface layer of this soil is generally dark brown, its texture is more sandy than that of Red Bay fine sandy loam, 0 to 2 percent slopes. This soil also has more rapid runoff, and there is a slight to moderate hazard of erosion.

This soil is suited to pastures of bahiagrass, Coastal bermudagrass, and other deep-rooted plants. It is also suited to crimson clover and ryegrass, which can be grown during the winter. Use of the soil for cultivated crops is limited by its moderate slope and the slight to moderate hazard of erosion. It can be used for cultivated crops if it is well managed and if a system to dispose of excess water is installed. About 30 percent of the acreage is in tilled crops, 20 percent is in pasture, and half is wooded. (Capability unit IIe–12; woodland suitability group 5; Coastal Plain Hills range site.)

Riverwash

This miscellaneous land type consists of deposits of sand that are mainly in areas along large streams. At times, the areas are covered by water, and their size and shape change each time they are flooded. The soil material has been deposited too recently for a soil profile to have had time to develop.

Riverwash (Re).—This land type generally occupies areas in the curves of rivers and creeks. The areas range from less than 1 acre to as much as 10 acres in size. The only vegetation growing on them consists of a few weeds that are on the more nearly stabilized areas. This land type has no value for agriculture, but some of the large areas serve as a source of sand for building purposes. (Capability unit VIIIs–11; woodland suitability group 12; Coastal Plain Sands range site.)

Robertsdale Series

The Robertsdale series consists of moderately deep, somewhat poorly drained soils that are strongly acid. The soils developed in sandy clay loam and are on uplands. Their slope is between 0 and 2 percent. The soils have iron concretions throughout, and there is a moderately developed fragipan in the subsoil.

The surface layer of these soils consists of dark grayish-brown to very dark gray loam. Their subsoil is mottled olive-yellow clay loam or fine sandy clay loam.

The Robertsdale soils are associated with the Irvington, Tifton, Marlboro, Lynchburg, Savannah, and Grady soils. They are not so well drained as the Irvington soils, but they are better drained than the Grady soils. They are less well drained than the Tifton and Marlboro soils, and they have a fragipan, which is lacking in those soils. The Robertsdale soils have about the same color and drainage as the Lynchburg soils, but they are finer textured, contain many iron concretions, and have a fragipan. The Robertsdale soils are more poorly drained and contain more concretions than the Savannah soils.

The natural vegetation on the Robertsdale soils is longleaf pines, slash pines, gallberry bushes, and native grasses.

Robertsdale loam (Rr).—This is the only Robertsdale soil mapped in the county. It is on uplands and is moderately deep and somewhat poorly drained. The following describes a profile in a moist, cultivated area 2¼ miles southeast of Robertsdale (SW¼SW¼ sec. 8, T. 6 s., R. 4 E.):

A_p—0 to 7 inches, very dark gray (10YR 3/1, moist) or gray (10YR 5/1, dry) loam; weak, medium, crumb structure; very friable; common concretions one-fourth inch in diameter; strongly acid; abrupt, smooth boundary.

B_{21}—7 to 14 inches, olive-yellow (2.5Y 6/6) light clay loam or fine sandy clay loam; few, medium, distinct mottles of strong brown (7.5YR 5/8), yellowish brown (10YR 5/8), and light brownish gray (2.5Y 6/2); weak, fine, subangular blocky structure; very friable; common concretions ¼ to ½ inch in diameter; strongly acid; gradual, wavy boundary.

B_{22}—14 to 23 inches, mottled light brownish-gray (2.5 Y 6/2), olive-yellow (2.5Y 6/6), red (2.5YR 4/8), strong-brown (7.5YR 5/8), and yellowish-brown (10YR 5/8) fine sandy clay loam; many, coarse, distinct mottles; weak, medium, subangular blocky structure; friable when moist, very hard when dry; many concretions ⅛ to ½ inch in diameter; a few small, firm peds that have red interiors; strongly acid; gradual, wavy boundary.

B_{3m}—23 to 36 inches, mottled light yellowish-brown (2.5Y 6/4), olive–yellow (2.5Y 6/6), red (2.5YR 4/8), yellowish-red (5YR 4/8), and strong-brown (7.5YR 4/8) fine sandy clay loam; many, medium, distinct mottles; weak to moderate, subangular blocky structure; friable or firm when moist, extremely hard when dry; common concretions ⅛ to ½ inch in diameter; strongly acid; gradual, wavy boundary.

C_1—36 to 45 inches, yellowish-brown (10YR 5/8) fine sandy clay loam; few, medium, distinct mottles of light brownish gray (2.5Y 6/2) and red (2.5YR 4/8); weak, medium, subangular blocky structure; firm when moist, very hard when dry; common concretions ¼ to ½ inch in diameter; strongly acid; gradual, wavy boundary.

C_2—45 to 58 inches +, mottled yellowish-brown (10YR 5/8) and red (2.5YR 4/8) sandy clay loam or clay loam; structureless; cemented; firm when moist, hard when dry; many large concretions as much as 1 inch in diameter; strongly acid.

The color of the surface layer ranges from very dark gray to dark grayish brown, and that of the B horizon, from olive yellow (2.5Y 6/6) to pale olive (5Y 6/3) or light brownish gray (2.5Y 6/2). (These colors are of moist soil. When the soil is dry, the color values are one or two units higher.) The texture of the B horizon ranges from loam or clay loam to fine sandy clay loam, but in most places it is fine sandy clay loam. Depth to the fragipan ranges from about 16 to 28 inches, but in most places it is 18 to 24 inches. The number of concretions varies from place to place, and in some areas there is a concretionary pan.

Mapped with this soil are a few areas where the surface layer is fine sandy loam or very fine sandy loam. These areas are too small to be mapped separately.

Robertsdale loam is low in natural fertility and medium in content of organic matter. Its capacity for storing available moisture is moderate to high, and permeability is slow. Water infiltrates slowly. Runoff is slow, and there is little or no hazard of erosion.

Use of this soil for cultivated crops is limited by somewhat poor drainage and slow permeability. About equal acreages are used for trees, pasture, and cultivated crops. (Capability unit IIIw–12; woodland suitability group 6; Coastal Plain Flatwoods range site.)

Ruston Series

The Ruston series consists of deep, well-drained soils that are strongly acid or very strongly acid. The soils developed in sandy loam and sandy clay loam on uplands. Their slope ranges from 0 to 12 percent, but in most places it is between 2 and 5 percent.

The surface layer of these soils is brown to very dark grayish-brown or yellowish-brown fine sandy loam. Their subsoil ranges from strong-brown to yellowish-red sandy loam to sandy clay loam.

The Ruston soils are associated with the Norfolk, Orangeburg, Faceville, and Eustis soils. They have about the same kind of texture as the Norfolk and Orangeburg soils, but their subsoil is strong brown to yellowish red rather than yellowish brown like that of the Norfolk soils or red like that of the Orangeburg soils. The color of their subsoil is similar to that of the Faceville and Eustis soils, but they have more sand in the surface layer and in the upper part of the subsoil than the Faceville soils. They are less sandy to a depth of 30 inches than are the Eustis soils.

The natural vegetation on the Ruston soils is mainly longleaf pine, loblolly pine, and shortleaf pine. There are a few hickory trees, live oaks, post oaks, magnolia trees, dogwoods, persimmon trees, and plum bushes.

Ruston fine sandy loam, 2 to 5 percent slopes (RuB).—This deep, well-drained soil is on uplands. The following describes a profile in a moist, cultivated area 1 mile southeast of Robertsdale (SW¼SW¼ sec. 5, T. 6 S., R. 4 E.):

A_p—0 to 7 inches, dark-brown (10YR 4/3) fine sandy loam; weak, fine, crumb structure; loose or very friable; a few iron concretions one-half inch in diameter; strongly acid; abrupt, wavy boundary.

A_3—7 to 13 inches, yellowish-brown (10YR 5/8) fine sandy loam; weak, fine, crumb structure; loose or very friable; strongly acid; clear, wavy boundary.

B_1—13 to 29 inches, yellowish-red (5YR 4/8) sandy loam; weak, fine, subangular blocky structure; very friable; strongly acid; gradual, wavy boundary.

B_2—29 to 41 inches, yellowish-red (5YR 4/8) coarse sandy clay loam; weak, medium, subangular blocky structure; friable; strongly acid; gradual, wavy boundary.

C—41 to 52 inches, yellowish-red (5YR 5/8) sandy loam; weak, fine, subangular blocky structure; very friable; strongly acid.

The surface layer of this soil ranges from brown to dark grayish brown or yellowish brown. In most places the subsoil is strong brown to yellowish red, but in some places it is red to dark red at a depth of 4 feet. The texture of the substratum ranges from loamy sand to sandy clay loam. The number of iron concretions ranges from none to few. In areas of this soil in the northern one-third of the county, a few quartz pebbles are on the surface and in the profile.

Mapped with this soil are a few areas that have a surface layer of loamy sand or loamy fine sand. These areas are too small to be mapped separately.

Ruston fine sandy loam, 2 to 5 percent slopes, is low in natural fertility and medium in content of organic matter. Its capacity for storing available moisture is moderate to low, and the soil is moderate in permeability. Runoff is medium, and water infiltrates at a moderate rate. The hazard of erosion is slight.

The medium rate of runoff and the slight hazard of erosion limit this soil when it is used for cultivated crops. About equal acreages are used for cultivated crops, pasture, and trees. (Capability unit IIe-12; woodland suitability group 5; Coastal Plain Hills range site.)

Ruston fine sandy loam, 0 to 2 percent slopes (RuA).—This soil has a thicker solum than Ruston fine sandy loam, 2 to 5 percent slopes, and its surface layer is finer textured. Runoff is slower, and there is little or no hazard of erosion.

This soil is suited to all of the crops commonly grown in the county. It responds well if fertilizer and organic matter are added, and it is easy to work and to protect from erosion. About one-half of the acreage is in cultivated crops, and acreages of about equal size are in trees and pasture. (Capability unit I-12; woodland suitability group 5; Coastal Plain Hills range site.)

Ruston fine sandy loam, 2 to 5 percent slopes, eroded (RuB2).—This soil has a slightly lower capacity for storing available moisture than Ruston fine sandy loam, 2 to 5 percent slopes. From 25 to 75 percent of the original surface layer has been lost through erosion. The present surface layer is more reddish than that of the uneroded Ruston soils. The hazard of further erosion is slight to moderate.

Use of this soil for cultivated crops is limited by medium runoff and the slight to moderate hazard of further erosion. Nearly all of it is in pasture. (Capability unit IIe-12; woodland suitability group 5; Coastal Plain Hills range site.)

Ruston fine sandy loam, 5 to 8 percent slopes (RuC).—This soil has a lower capacity for storing available moisture than Ruston fine sandy loam, 2 to 5 percent slopes. There is a moderate hazard of erosion.

Use of this soil for crops is limited by strong slopes, medium runoff, and moderate hazard of erosion. Nearly all of it is wooded, but a small acreage is in cultivated crops and pasture. (Capability unit IIIe-12; woodland suitability group 5; Coastal Plain Hills range site.)

Ruston fine sandy loam, 5 to 8 percent slopes, eroded (RuC2).—This soil has a thinner solum than Ruston fine sandy loam, 2 to 5 percent slopes, and the hazard of erosion is greater. From 25 to 75 percent of the original surface layer has been lost through erosion. The present surface layer is more reddish than that of the uneroded Ruston soils.

Use of this soil is limited by strong slopes, medium runoff, present erosion, and the moderate hazard of further erosion. All of the acreage is in pasture or has reverted to trees. (Capability unit IIIe-12; woodland suitability group 5; Coastal Plain Hills range site.)

Ruston fine sandy loam, 8 to 12 percent slopes (RuD).—This soil has a much thinner solum than Ruston fine sandy loam, 2 to 5 percent slopes, and there is a serious hazard of erosion. Runoff is rapid, and the capacity for storing available moisture is very low.

Mapped with this soil are a few areas where 25 to 75 percent of the original surface layer has been lost through erosion. In these areas the surface layer is reddish. Also included are areas where the slope is as much as 17 percent and where there are small gullies. All of these areas are too small to be mapped separately.

Use of Ruston fine sandy loam, 8 to 12 percent slopes, for crops is limited by strong slope, rapid runoff, and the serious hazard of erosion. Nearly all of the acreage is

wooded. (Capability unit IVe-15; woodland suitability group 5; Coastal Plain Hills range site.)

Sandy Alluvial Land

This miscellaneous land type consists of moderately well drained to excessively drained coarse sand and loamy sand. It is on the flood plains of small rivers and creeks. The slope is between 0 and 5 percent.

Sandy alluvial land (Sa).—The soil material in the upper part of this land type is grayish-brown to very dark gray loamy fine sand. It overlies yellowish-brown to nearly white loamy sand. The texture of the soil material and the color and number of the mottles vary from place to place.

Mapped with this miscellaneous land type are areas along the major rivers where the soil material consists of excessively drained loamy fine sand that is free of mottles. The upper part of the soil material in such areas is yellowish-brown to brown loamy fine sand, and the lower part is brown loamy sand. Also included are a few areas of a somewhat poorly drained, medium-textured soil covered by a layer of sandy overwash that is about 18 to 20 inches thick. All of these areas are too small to be mapped separately.

The soil material in Sandy alluvial land is strongly acid, very low in fertility, and low in content of organic matter. It is rapidly or very rapidly permeable. The land is flooded frequently for short periods, and it receives large deposits of sandy overwash.

This land type is probably best suited to trees. Its limitations are its susceptibility to leaching and frequent flooding, and its very low fertility. The natural vegetation is longleaf pine, slash pine, and juniper, and an understory of gallberry, palmetto, and scrub oak. None of the land is cultivated. (Capability unit IIIw-13; woodland suitability group 10; Coastal Plain Bottom Lands (Canebreaks-Hardwoods) range site.)

Savannah Series

The Savannah series consists of moderately deep, moderately well drained soils that are very strongly acid. The soils are on uplands and developed in sandy loam and sandy clay loam. Their slope is between 0 and 2 percent.

The surface layer of these soils is dark gray or very dark gray very fine sandy loam. Their subsoil is yellowish-brown loam to very fine sandy clay loam, and it is underlain by a fragipan.

The Savannah soils are mainly near Lottie, in the northeastern part of the county. They are associated with the Marlboro, Goldsboro, Irvington, and Robertsdale soils. The Savannah soils have about the same texture as the Marlboro, Irvington, and Robertsdale soils, but they are not so well drained as the Marlboro soils. They have a weak fragipan that is lacking in the Marlboro and Goldsboro soils, and they have a thinner surface layer than the Goldsboro soils and are finer textured throughout. The Savannah soils have about the same drainage as the Irvington soils, but they lack the common to many iron concretions on the surface and in the profile that are typical of those soils.

The natural vegetation on the Savannah soils is mainly longleaf pine, loblolly pine, and shortleaf pine. There are some scattered dogwoods, oaks, and gum trees.

Savannah very fine sandy loam, 0 to 2 percent slopes (SbA).—This is the only Savannah soil mapped in the county. It is a moderately deep, moderately well drained soil of the uplands. The following describes a profile in a moist, wooded area 2 miles north of Lottie (NW¼NW¼ sec. 12, T. 2 N., R. 4 E.):

A_1—0 to 4 inches, very dark gray (10YR 3/1) very fine sandy loam; weak, fine, crumb structure; friable; very strongly acid; abrupt, smooth boundary.

A_2—4 to 7 inches, light yellowish-brown (2.5Y 6/4) very fine sandy loam; weak, fine, crumb structure; friable; very strongly acid; gradual, wavy boundary.

B_1—7 to 13 inches, yellowish-brown (10YR 5/4 to 5/6) loam; weak, fine, subangular blocky structure; friable; very strongly acid; gradual, wavy boundary.

B_2—13 to 22 inches, yellowish-brown (10YR 5/4 to 5/6) loam; few, fine, faint mottles of yellowish brown (10YR 5/8); weak to medium, fine, subangular blocky, structure; friable; a few, soft iron concretions; very strongly acid; gradual, wavy boundary.

B_{31m}—22 to 31 inches, mottled yellowish-brown (10YR 5/8), olive-yellow (2.5Y 6/6), and light-gray (2.5Y 7/0) loam; weak to medium, fine, subangular blocky structure; compact but friable; a few, soft iron concretions ⅛ to ¼ inch in diameter; very strongly acid; gradual, wavy boundary.

B_{32m}—31 to 47 inches +, mottled light-gray (2.5Y 7/0), yellow (2.5Y 7/8), and strong-brown (7.5YR 5/8) loam; weak to medium, fine, subangular blocky structure; a few, soft iron concretions ¼ to ⅛ inch in diameter; a few, fine pore spaces; compact in place, but friable when removed; very strongly acid.

The surface layer of this soil is dark gray or very dark gray. The subsoil is olive yellow to yellowish brown, and its texture ranges from loam to very fine sandy clay loam.

Mapped with this soil are a few areas where the slope is as much as 5 percent. These areas are too small to be mapped separately.

Savannah very fine sandy loam, 0 to 2 percent slopes, is low in natural fertility and medium in content of organic matter. The capacity for storing available moisture is moderate to high, and permeability is slow. Water infiltrates slowly. Runoff is very slow, and there is little or no hazard of erosion.

Use of this soil for crops is limited by very slow runoff, slow permeability, and lack of good drainage. Nearly all of the acreage is wooded, but a small part is in cultivated crops or pasture. (Capability unit IIw-16; woodland suitability group 8; Coastal Plain Hills range site.)

Scranton Series

The Scranton series consists of deep, somewhat poorly drained soils that are strongly acid or very strongly acid. The soils developed in loamy fine sand to sand and are on uplands.

The surface of these soils ranges from gray to black loamy fine sand. The soil material below the surface layer is pale-yellow to light-gray loamy fine sand.

The Scranton soils are southeast of Foley and south of Elberta. They are associated with the Klej, Plummer, and Lynchburg soils. The Scranton soils are not so well drained as the Klej soils, and they are better drained than

the Plummer soils. They have more sand throughout the profile than the Lynchburg soils.

The natural vegetation on the Scranton soils is mainly longleaf pine and slash pine. The understory is gallberry and wiregrass.

Scranton loamy fine sand, 0 to 2 percent slopes (ScA).—This deep, somewhat poorly drained soil is on uplands. The following describes a profile in a moist, cutover woods (NE¼SE¼ sec. 16, T. 7 S., R. 4 E.):

A_1—0 to 11 inches, very dark gray (10YR 3/1) to black (10YR 2/1) loamy fine sand; weak, fine, crumb structure; very friable; strongly acid; abrupt, wavy boundary.

C_{11}—11 to 21 inches, pale-yellow (2.5Y 7/4) loamy fine sand; few, fine, distinct mottles of light gray (2.5Y 7/2); single grain; very friable; very strongly acid; gradual, wavy boundary.

C_{12g}—21 to 39 inches, light-gray (5Y 7/1) loamy fine sand; common, medium, distinct mottles of pale yellow (5Y 8/3); single grain; very friable; very strongly acid; gradual, wavy boundary.

C_{2g}—39 to 52 inches +, white (5Y 8/1) sand; few, medium, distinct mottles of pale brown (10YR 6/3); single grain; very friable; very strongly acid.

The surface of this soil is gray or dark gray in areas that have been cultivated. In places the substratum has a texture of sandy loam to sandy clay loam and contains concretions.

Mapped with this soil are a few areas where the surface layer is loamy sand to loamy very fine sand. Also included are areas where the slope is as much as 8 percent. These areas are too small to be mapped separately.

Scranton loamy fine sand, 0 to 2 percent slopes, is low in natural fertility, and its surface layer is medium to high in content of organic matter. Its capacity for storing available moisture is low, and permeability is rapid. Water infiltrates rapidly. The water table is high.

This soil is limited in its use for crops by its somewhat poor drainage, high water table, and rapid rate of leaching. Nearly all the acreage is woodland, and some of it is in cutover woods. A small part is in pasture or in cultivated crops. (Capability unit IIIw–13; woodland suitability group 4; Coastal Plain Flatwoods range site.)

Scranton loamy fine sand, 2 to 5 percent slopes (ScB).—This sloping soil is transitional between areas of loamy sand on uplands and poorly drained soils farther down the slope. It is also on low ridges within areas of Scranton loamy fine sand, 0 to 2 percent slopes. This soil is more susceptible to erosion than the less sloping Scranton soil.

This soil is probably best suited to pasture or trees. It is suited to whiteclover and dallisgrass if adequate amounts of fertilizer are added. The soil is limited in its use for cultivated crops by its high water table, susceptibility to leaching, and the hazard of erosion. (Capability unit IIIw–13; woodland suitability group 4; Coastal Plain Flatwoods range site.)

St. Lucie Series

The St. Lucie series consists of deep, excessively drained soils that are very strongly acid. The soils are on uplands and developed in sand. Their slope is between 0 and 5 percent.

The surface layer of these soils is gray sand, and the soil material below it is white sand. The characteristics of the profile vary but little from one area to another.

The St. Lucie soils are associated with the Lakewood and Leon soils and with areas of Coastal beaches and Muck. In some areas that parallel beaches, they are mapped with the Leon soils and Muck. The St. Lucie soils lack the layer of organic material that is typical of the Leon soils, and the soil material in the upper part of their profile is lighter colored, deeper, and looser. They lack the yellow and brown color that is common in the Lakewood soils, and they support more vegetation and have more organic matter in the surface layer than Coastal beaches.

The natural vegetation on the St. Lucie soils is mainly slash pine and sand pine. The understory consists of myrtle, rosemary, gallberry, palmetto, and cactus.

St. Lucie sand, 0 to 5 percent slopes (SsB).—This deep, excessivly drained soil is on uplands. The following describes a profile in a moist, wooded area (NW¼NE¼ sec. 4, T. 9 S., R. 5 E.):

A_1—0 to 2 inches, gray (10YR 5/1) sand; single grain; loose; very strongly acid; clear, wavy boundary.

A_2—2 to 9 inches, gray (10YR 6/1) sand; single grain; loose; very strongly acid; gradual, wavy boundary.

C_1—9 to 54 inches, white (10YR 8/1) sand; single grain; loose; very strongly acid; gradual, wavy boundary.

C_2—54 to 66 inches, white (10YR 8/1) sand; many, fine, distinct, yellow (10YR 8/8) mottles; single grain; loose; very strongly acid.

This soil is very low in natural fertility and in content of organic matter. Its capacity for storing available moisture is low, and it has very rapid permeability. There is little or no runoff. Water infiltrates rapidly, and there is little or no hazard of erosion.

This soil is suitable only for homesites and for trees and shrubs because it is sandy and very rapidly permeable. Nearly all of it is used as a resort area and as sites for summer cottages. None of it is cultivated. (Capability unit VIs–12; woodland suitability group 2; Coastal Plain Sands range site.)

St. Lucie-Leon-Muck complex (St).—This complex consists of areas in which the St. Lucie and Leon soils and Muck are all so intricately associated that it is impractical to show them separately on a map. The St. Lucie and Leon soils each make up about 40 percent of this mapping unit, and Muck makes up the remaining 20 percent. Profiles that are typical of the St. Lucie and Leon soils are described under the St. Lucie and Leon series, and a profile of Muck is described in the Hyde and Bayboro soils and Muck mapping unit under the Hyde series.

The areas of this complex are in the extreme southern part of the county. They are inland from the coast and are parallel to it. The soils are on a series of stabilized sand ridges that have low, wet areas in between.

The St. Lucie soils are low in organic matter and are excessively drained, the Leon soils are moderately high in organic matter and are poorly drained, and Muck is very high in organic matter and is very poorly drained. All of these soils are strongly acid to extremely acid and are low in natural fertility.

The vegetation on the sand ridges is sand pine, oak, palmetto, cactus, and seaoats. Slash pine, loblolly pine,

gallberry, myrtle, and titi are on the Leon soil and on areas of Muck between the sand ridges.

The soils of this complex have little or no value for agriculture. The St. Lucie soils are used as building sites for summer cottages and recreational areas. The Leon soils and Muck are suited to trees, to grazing, and to wildlife. (Capability unit VIs–12; woodland suitability group 11; Coastal Plain Sands range site.)

Sunsweet Series

The Sunsweet series consists of moderately well drained soils that are strongly acid or very strongly acid. The soils are shallow or very shallow over unconsolidated clay or sandy clay loam. They developed in sandy clay loam and clay and are on uplands. Generally, they occupy side slopes adjacent to more gently sloping soils. The slope ranges from 0 to 17 percent, but in most places it is between 5 and 8 percent. These soils have a thin solum, a tough, compact C horizon, and many concretions on the surface and in the A and B horizons.

The surface layer of these soils is grayish-brown to very dark grayish-brown fine sandy loam. Their subsoil is yellowish-brown to yellowish-red sandy clay. It is underlain by reticulately mottled sandy clay loam to clay. The thickness of the subsoil varies within short distances, and in places there is no B horizon.

The Sunsweet soils occur mainly south and east of Bay Minette, in association with the Bowie, Tifton, Carnegie, and Cuthbert soils. They have a much thinner solum and contain more clay than the Bowie, Tifton, and Carnegie soils. The Sunsweet soils are very similar to the Cuthbert soils, but they have many iron concretions on the surface and throughout the profile.

The natural vegetation on the Sunsweet soils is longleaf pine, slash pine, loblolly pine, dogwood, and oak.

Sunsweet fine sandy loam, 5 to 8 percent slopes, eroded (SuC2).—This is a moderately well drained soil of the uplands. It is shallow over unconsolidated clay or sandy clay loam. The following describes a profile in a moist, wooded area 4½ miles north of Perdido (NW¼-SE¼ sec. 1, T. 1 N., R. 4 E.):

A_1—0 to 3 inches, very dark grayish-brown (10YR 3/2) fine sandy loam; weak, fine, crumb structure; loose when dry, very friable when moist; many iron concretions ⅛ to ½ inch in diameter; many fine roots; strongly acid; abrupt, wavy boundary.

A_3—3 to 9 inches, brown (10YR 4/3) fine sandy loam; weak, fine, crumb structure; loose when dry, very friable when moist; many iron concretions ⅛ to ½ inch in diameter; common fine roots; very strongly acid; gradual, wavy boundary.

B_2—9 to 17 inches, yellowish-red (5YR 5/8) sandy clay; moderate, medium, angular blocky structure; slightly hard when dry, friable when moist; common iron concretions ⅛ to ½ inch in diameter; very strongly acid; gradual, irregular boundary.

C_1—17 to 25 inches, mottled brownish-yellow (10YR 6/6), light-gray (10YR 7/1), and yellowish-red (5YR 5/8) clay; strong, coarse, angular blocky structure; very hard when dry, firm when moist; few iron concretions 1 inch to 2 inches in diameter; very strongly acid; gradual, irregular boundary.

C_2—25 to 50 inches +, light-gray (10YR 7/1) clay; many, fine, distinct mottles of pale yellow (2.5Y 7/4) and yellowish brown (10YR 5/8); strong, coarse, angular blocky structure; very hard when dry, very firm when moist; very strongly acid.

The surface layer of this soil is grayish brown to very dark grayish brown, and it is as much as 13 inches thick. The thickness of the subsoil ranges from 0 to 18 inches within short distances. The number of concretions ranges from common to many. The color and texture of the parent material vary within short distances.

Mapped with this soil are areas where the surface layer is loamy sand, sandy loam, or very fine sandy loam. Also included are severely eroded areas where the present surface layer is mottled sandy clay to clay from the former subsoil. These areas are too small to be mapped separately.

Sunsweet fine sandy loam, 5 to 8 percent slopes, eroded, is low in natural fertility and in content of organic matter. Its capacity for storing available moisture is low, and it has slow permeability. Runoff is rapid, and there is a moderate to severe hazard of further erosion.

This soil is probably best suited to trees. Its use for crops is limited by its strong slope, shallow root zone, low moisture-holding capacity, slow permeability, rapid runoff, and the moderate to severe hazard of further erosion. Nearly all of the soil is wooded. A small acreage, formerly cultivated, is now in pasture or has reverted to trees. (Capability unit VIe–19; woodland suitability group 7; Coastal Plain Hills range site.)

Sunsweet fine sandy loam, 2 to 5 percent slopes, eroded (SuB2).—This soil has a slightly higher capacity for storing available moisture than Sunsweet fine sandy loam, 5 to 8 percent slopes, eroded, and it has medium runoff. The hazard of further erosion is moderate.

Use of this soil for crops is limited by the moderate slope, shallow root zone, low moisture-holding capacity, slow permeability, medium runoff, and the moderate hazard of further erosion. About 60 percent of it is wooded, 25 percent is in pasture, and 15 percent is in cultivated crops. (Capability unit IVs–19; woodland suitability group 7; Coastal Plain Hills range site.)

Sunsweet fine sandy loam, 8 to 17 percent slopes, eroded (SuD2).—This soil is shallower over unconsolidated clay or sandy clay loam than Sunsweet fine sandy loam, 5 to 8 percent slopes, eroded. It has very rapid runoff; the hazard of further erosion is serious.

Use of this soil for crops is limited by the strong slope, shallow root zone, low moisture-holding capacity, slow permeability, very rapid runoff, and the severe hazard of further erosion. All of it is wooded. (Capability unit VIIe–19; woodland suitability group 7; Coastal Plain Hills range site.)

Swamp

This miscellaneous land type is made up of areas that are frequently flooded and have water standing on them most of the time. It consists of recent deposits of alluvium and decomposed mosses, sedges, and trees. The areas are mainly in old stream channels or in old lakebeds.

Swamp (Sw).—The soil material in this land type is strongly acid to extremely acid, and it varies in texture and in content of organic matter. The upper part is gray to black; it has a texture of sandy loam to silt loam but includes some muck and peat. Below is mottled, gray soil material that ranges from loamy sand to silty clay. In places there are areas of muck or peat at a depth of 3 feet or more.

Swamp is mainly on bottoms along rivers in the northwestern part of the county. It is probably best suited to trees and wildlife, and all of it is used for those purposes. The land is covered with a thick growth of hardwoods, and there are scattered pines, bushes, and other vegetation. (Capability unit VIIw–11; woodland suitability group 13; Swamps range site.)

Tidal Marsh

This miscellaneous land type is nearly level and is only a few feet above sea level. It is generally covered by or is affected by salt water or brackish water when tides are high.

Tidal marsh (Td).—This land type consists of both fresh-water and salt-water marshes. It occurs along the gulf coast and bayous in the southern and western parts of the county. It is also along the shores of the adjacent islands and along the rivers, creeks, and bayous at the head of the tidal waters on Mobile Bay. At high tide the areas are flooded by salt water from the Gulf of Mexico and by backwater from streams.

In most places the soil material in this land type is gray heavy clay or silty clay that has streaks and mottles of yellow and brown. It is very strongly acid.

Tidal marsh generally has no trees growing on it, but there are a few willows and a dense cover of marsh cane, marsh grass, and rushes. The areas are used mainly for wildlife and recreation, but soil material has been pumped over some parts to form islands and building sites. None of the acreage is suitable for cultivation. (Capability unit VIIw–11; woodland suitability group 12; Marshland range site.)

Tifton Series

The Tifton series consists of deep, well-drained soils that are very strongly acid. The soils developed in sandy clay loam and are on uplands. Their slope ranges from 0 to 8 percent, but in most places it is between 2 and 5 percent.

The surface layer of these soils is dark grayish-brown very fine sandy loam. Their subsoil is yellowish-brown loam to sandy clay loam.

The Tifton soils are mainly near Robertsdale and Loxley, and they are associated with the Marlboro, Irvington, Carnegie, and Norfolk soils. The Tifton soils have about the same color and texture as the Marlboro soils, but they have a thicker A horizon and many iron concretions throughout the profile. They are better drained than the Irvington soils and lack the weak fragipan that is typical of those soils. The subsoil is yellowish brown rather than yellowish red to red like that of the Carnegie soils. The Tifton soils are finer textured throughout than the Norfolk soils, and they have concretions, which are lacking in the Norfolk soils.

The natural vegetation on the Tifton soils is longleaf pine, shortleaf pine, dogwood, and various kinds of oak. Slash pine and loblolly pine are dominant in old fields and in reforested areas.

Tifton very fine sandy loam, 0 to 2 percent slopes (TfA).—This deep, well-drained soil is on uplands. The following describes a profile in a moist, cultivated area across from the Robertsdale School at Robertsdale (SW¼ NW¼ sec. 5, T. 6 S., R. 4 E.):

A_p—0 to 7 inches, dark grayish-brown (10YR 4/2) very fine sandy loam; weak, fine, crumb structure; very friable; many iron concretions ¼ to ½ inch in diameter; many fine roots; very strongly acid; clear, smooth boundary.

A_2—7 to 15 inches, dark yellowish-brown (10YR 4/4) very fine sandy loam; weak, fine, subangular blocky structure; very friable; many iron concretions ¼ to ½ inch in diameter; many fine roots; very strongly acid; gradual, wavy boundary.

B_2—15 to 35 inches, yellowish-brown (10YR 5/8) sandy clay loam; weak, fine, subangular blocky structure; friable; many iron concretions ¼ to ½ inch in diameter; very strongly acid; gradual, wavy boundary.

B_3—35 to 59 inches, yellowish-brown (10YR 5/8) sandy clay loam; few, fine, faint mottles of strong brown (7.5YR 5/8), brownish yellow (10YR 6/8), and yellowish red (5YR 5/8); weak, medium, subangular blocky structure; friable; many iron concretions ¼ to ½ inch in diameter; very strongly acid; gradual, wavy boundary.

C—59 to 80 inches +, mottled strong-brown (7.5YR 5/8), brownish-yellow (10YR 6/8), red (2.5YR 4/8), and light-gray (10YR 7/2) sandy clay loam; massive; firm; many iron concretions ¼ to ½ inch in diameter; very strongly acid.

The surface layer of this soil is dark grayish brown to dark gray. The subsoil is yellowish brown to strong brown, and its texture ranges from sandy clay loam or clay loam to loam. The number of concretions on the surface and in the profile ranges from common to many.

Mapped with this soil are a few areas where the surface layer is fine sandy loam. These areas are too small to be mapped separately.

Tifton very fine sandy loam, 0 to 2 percent slopes, is low in natural fertility and medium in content of organic matter. Its capacity for storing available moisture is moderate, and it has moderate to slow permeability. Water infiltrates slowly. Runoff is slow, and there is little or no hazard of erosion.

This soil has no major limitations. It is suited to a large number of different kinds of crops and is used extensively to grow Irish potatoes. It is easily tilled and responds well to good management, particularly if adequate amounts of fertilizer are added. Nearly all of the acreage is in cultivated crops, but a small part is in pasture and trees. (Capability unit I–11; woodland suitability group 5; Coastal Plain Hills range site.)

Tifton very fine sandy loam, 2 to 5 percent slopes (TfB).—This soil has a somewhat thinner solum than Tifton very fine sandy loam, 0 to 2 percent slopes, and its capacity for storing available moisture is slightly lower. It has medium runoff, and there is a slight hazard of erosion.

Use of this soil for crops is limited by its moderate slope, medium runoff, and the slight hazard of erosion. Nearly all of it is wooded, but a small part is in cultivated crops or pasture. (Capability unit IIe–11; woodland suitability group 5; Coastal Plain Hills range site.)

Tifton very fine sandy loam, 2 to 5 percent slopes, eroded (TfB2).—This soil has a thinner surface layer and solum than Tifton very fine sandy loam, 0 to 2 percent slopes, and its capacity for storing available moisture is slightly lower. It has medium runoff, and the hazard of further erosion is slight to moderate.

Use of this soil for crops is limited by its moderate slope, medium runoff, present erosion, thin surface layer,

and slight to moderate hazard of further erosion. Nearly all of the acreage is in cultivated crops or pasture, but pines have been reestablished on a small part. (Capability unit IIe–11; woodland suitability group 5; Coastal Plain Hills range site.)

Tifton very fine sandy loam, 5 to 8 percent slopes (TfC).—This soil has a thinner solum than Tifton very fine sandy loam, 0 to 2 percent slopes, and its capacity for storing available moisture is lower. It has medium runoff, and there is a moderate hazard of erosion.

Use of this soil for crops is limited by its strong slope, medium runoff, low moisture-holding capacity, and the moderate hazard of erosion. Nearly all of it is wooded, but a small part is in pasture. (Capability unit IIIe–11; woodland suitability group 5; Coastal Plain Hills range site.)

Tifton very fine sandy loam, 5 to 8 percent slopes, eroded (TfC2).—This soil has a thinner surface layer and solum than Tifton very fine sandy loam, 0 to 2 percent slopes, and its capacity for storing available moisture is lower. It has medium runoff, and the hazard of further erosion is moderate.

Nearly all of the acreage is in pasture, but a small part is used for cultivated crops. Pines have been reestablished on a small acreage. (Capability unit IIIe–11; woodland suitability group 5; Coastal Plain Hills range site.)

Wahee Series

The Wahee series consists of moderately deep, moderately well drained to somewhat poorly drained soils that are strongly acid or very strongly acid. The soils developed in old alluvium consisting of silty clay loam to clay and are on terraces along streams of the Coastal Plain. They are nearly level to very gently sloping.

The surface layer of these soils is very dark grayish-brown silt loam. Their subsoil is mottled, yellowish silty clay or silty clay loam. Mottling is at a depth of 7 to 13 inches; the mottles increase in number and prominence with increasing depth.

The Wahee soils are along the Fish, Styx, and Blackwater Rivers in the southern part of the county and along the Little River in the northern part. They are also near the town of Tensaw. They are associated with the Myatt, Izagora, Kalmia, Flint, and Leaf soils. The Wahee soils have a finer textured subsoil than the Myatt, Izagora, and Kalmia soils. They are less well drained than the Flint and Kalmia soils and are better drained than the Myatt and Leaf soils.

The natural vegetation on the Wahee soils is mainly loblolly pine, longleaf pine, blackgum, sweetgum, and tulip-poplar. It also includes some scrub oak, such as blackjack oak, turkey oak, and live oak.

Wahee silt loam, 0 to 2 percent slopes (WaA).—This moderately deep, somewhat poorly drained soil is on terraces along streams. The following describes a profile in a moist, wooded area one-half mile southeast of Dixie Landing in the northwestern part of the county:

A_1—0 to 3 inches, very dark grayish-brown (10YR 3/2) silt loam; weak, fine, granular structure; friable; a few, black manganese concretions ⅛ to ¼ inch in diameter; strongly acid; abrupt, smooth boundary.

A_3—3 to 7 inches, light olive-brown (2.5Y 5/6) loam; weak, fine, granular structure; friable; a few small concretions; very strongly acid; gradual, wavy boundary.

B_2—7 to 13 inches, olive-yellow (2.5Y 6/6) silty clay loam; few, fine, distinct mottles of light brownish gray (2.5Y 6/2); moderate, medium, subangular blocky structure; friable or firm; a few small concretions; very strongly acid; gradual, wavy boundary.

B_3—13 to 34 inches, olive-yellow (2.5Y 6/6) silty clay; many, medium, prominent mottles of light brownish gray (2.5Y 6/2) and yellowish red (5YR 5/8); moderate, medium, subangular blocky structure; firm; a few soft concretions; very strongly acid; gradual, wavy boundary.

C—34 to 60 inches, mottled gray (2.5Y 6/0), yellowish-brown (10YR 5/6), and red (2.5YR 4/8) silty clay to clay; mottles are medium and prominent; moderate, medium, subangular blocky structure; very firm; a few small concretions; very strongly acid.

The surface layer of this soil is very dark grayish brown to light gray. In places the B_2 horizon is lacking and the B_3 horizon is light yellowish brown, has no mottles, and is at a depth of 3 to 4 inches.

Mapped with this soil are a few areas where the surface layer is sandy loam and the subsoil is sandy clay loam. These areas are too small to be mapped separately.

Wahee silt loam, 0 to 2 percent slopes, is low in natural fertility and in content of organic matter. Its capacity for storing available moisture is moderate, and it has slow permeability. Water infiltrates slowly. Runoff is slow, and there is little or no hazard of erosion.

Use of this soil for crops is limited by its somewhat poor drainage and slow permeability. Nearly all of the acreage is wooded, but a small part is in cultivated crops or pasture. (Capability unit IIIw–12); woodland suitability group 14; Coastal Plain Flatwoods range site.)

Wahee silt loam, 2 to 5 percent slopes (WaB).—This soil is generally better drained, has a lighter colored surface layer and a browner B_2 horizon than Wahee silt loam, 0 to 2 percent slopes, and mottling is at a greater depth. Runoff is also more rapid; therefore, the hazard of erosion is greater.

Use of this soil for crops is limited by its slow permeability, medium runoff, and the slight hazard of erosion. All of it is in trees, and some areas have been cut over. (Capability unit IIIw–12; woodland suitability group 14; Coastal Plain Flatwoods range site.)

Wet Clayey Alluvial Land

This miscellaneous land type consists of deep, poorly drained to moderately well drained soil material that is strongly acid or very strongly acid. It is in nearly level areas or in depressions of the Coastal flood plains. The slope is between 0 and 2 percent.

Wet clayey alluvial land (Wc).—This land type is on broad flood plains of the Alabama, Tombigbee, Mobile, and Tensaw Rivers in the western and northwestern parts of the county. The areas are flooded frequently. The floodwaters remain for 2 to 3 months during winter and spring.

This land type consists of alluvial material and has a texture of silt loam, silty clay, or clay. It contains a large amount of montmorillonite clay. In most places the soil material in the upper part is grayish-brown to dark-gray silt loam or silty clay loam. That in the lower part is

mottled dark grayish-brown or mottled gray silty clay or clay. In the areas where drainage is somewhat poor, the soil material is dark grayish brown to mottled gray throughout.

The moderately well drained areas of this land type make up only about 5 percent of the total acreage. They are on low ridges along old stream channels. The areas that are poorly drained, commonly called gumbo land, are dominant. They are at an elevation of 10 feet or less. In places, at a depth of 3 to 5 feet, the alluvial material overlies beds of peat and muck that are as much as 15 feet thick. Throughout the areas of poorly drained soil material are mica flakes, a few small iron concretions, and clamshells.

Wet clayey alluvial land has a cover of high-grade hardwoods. The principal trees on the poorly drained areas are cypress, tupelo-gum, and blackgum. Sweetgum, swamp blackgum, hackberry, sweetbay, red maple, water hickory, Nuttall oak, green ash, overcup oak, and American elm are on the somewhat poorly drained areas. Water oak, white ash, hickory, beech, birch, and swamp white oak are on the moderately well drained sites. Except in small, open areas, the undergrowth is sparse.

Because of the frequent and prolonged flooding, this land type is suitable only for trees. None of it is cultivated. (Capability unit Vw-12; woodland suitability group 10; Coastal Plain Bottom Lands (Canebreaks-Hardwoods) range site.)

Wet Loamy Alluvial Land

This miscellaneous land type consists of alluvial material deposited on flood plains. The areas are flooded frequently and are wet throughout most of the year. The slope is between 0 and 2 percent.

Wet loamy alluvial land (Wm).—Most of the time, this miscellaneous land type is saturated by seepage water, and it is subject to frequent overflow. In places water stands on the surface. The upper part of the soil material is gray to black, depending on the amount of organic matter it contains. The lower part is gray, black, or mottled.

In some areas bordering the larger streams in the county, small areas of sandy Riverwash are mapped with this land type. Where this land type occurs in slack-water areas, it is more silty than in other areas. In places it consists of accumulations of muck and peat that overlie a compacted mineral soil material. Where this land type is crossed by roads, recent deposits of sandy material from the road shoulders and from ditches have washed over small areas.

The vegetation consists of sweetgum, blackgum, bay, yellow-poplar, and other low-quality hardwoods. There are also scattered slash pines and cypresses. The understory is gallberry, myrtle, and a tangle of vines and brambles.

Because of its very poor drainage and the hazard of frequent flooding, this land type is probably best suited to woods or pasture. Nearly all of it is wooded, but a small acreage is in pasture. (Capability unit Vw-12; woodland suitability group 10; Coastal Plain Bottom Lands (Canebreaks-Hardwoods) range site.)

Use and Management of the Soils

This section has several main parts. In the first are described the general characteristics of the soils that affect their management, and general management practices that are suitable for all of the soils used for crops and pasture. In the second, the nationwide system of capability classification is explained and the capability units, or management groups, are described. The third part gives the estimated yields of the main crops grown in the county, and, after that, management of woodlands, range management, and wildlife management are discussed. Finally, facts are given about engineering.

General Management Practices

Most of the soils of Baldwin County have a sandy surface layer and are strongly acid or very strongly acid. Most of them are low or very low in natural fertility and in content of organic matter. The moisture-holding capacity is low to moderate in most of the soils, and the rate of infiltration is slow to medium. Most of the soils are subject to moderate to severe leaching.

Although the soils are generally well aerated, about one-sixth of the acreage suitable for cultivation consists of wet soils. These soils need drainage if they are used for field crops or pasture.

The large amount of rainfall, mild climate, and long growing season are favorable for field crops, pasture crops, and trees. Growing two crops per year on the same soil is a common practice.

Fertilizer and amendments.—Heavy application of a complete fertilizer is a standard part of good management for all crops requiring cultivation of the soil. For row crops, a complete fertilizer is applied at the time the crop is planted and a sidedressing of nitrogen is applied while the crop is being cultivated.

Field tests at the Gulf Coast Experiment Substation at Fairhope (fig. 11) indicate the great importance of fertilization to high crop yields. Several plots of Marlboro very fine sandy loam, 0 to 2 percent slopes, considered to be the best all-purpose soil in the county, were cleared in 1930. These plots have been planted to various crops since they were cleared. On one plot no fertilizer was

***Figure 11.*—The Gulf Coast Substation of the Agricultural Experiment Station at Fairhope.**

added. Here the average yield of corn per acre during a 30-year period was 5.9 bushels. A complete fertilizer was added regularly to another plot. Here the average yield of corn per acre during the same 30-year period was 67.7 bushels.

All of the soils in the county need lime, especially if legumes are to be grown. The amount of lime needed varies greatly and should be determined by testing the soils. Care should be taken not to add too much lime, particularly on the sandy soils, because plant nutrients are more readily available to crops in a neutral or slightly acid soil. Too, some deficiencies in minor elements, especially zinc, become more pronounced when the soils are overlimed. Special care is necessary to keep from overliming soils on which the pecans or Irish potatoes are to be grown. Lime should be spread on the soils several months before the crop is planted. Then it can react with the soil to correct the acidity before seeding takes place. Liming once every 5 to 10 years is generally adequate.

All of the soils are naturally low in organic matter, and the long frost-free season and humid climate make it impractical to maintain it at a high level. All available crop residues and manure should be returned to the soil. Alternating row crops and pasture in the cropping system and growing winter cover crops on soils where a summer crop is to be grown are practical means of keeping organic matter in the soil.

Tillage.—Many of the soils develop a plowpan when plowed to the same depth for several years. Varying the plow depth helps to avoid this. Using a cropping system in which row crops are alternated with pasture also helps to keep a plowpan from forming.

Mulch tillage, which consists of planting a row crop without the usual preparation of the seedbed, is practical for some crops. A planting furrow is made and the residues of the preceding crop are turned and covered in the row middle.

Mulch tillage helps to conserve organic matter and it also helps to keep the soils from drying out when corn or soybeans are to be planted after a winter small grain has been combined.

Plant diseases and insects.—Diseases and insects are a continual hazard because the mild, humid climate is favorable for them. Most crops need to be sprayed for profitable yields. Airplanes and tractor-drawn equipment are used for spraying some fields. Research has been carried on at the Gulf Coast Experiment Substation to test varieties of crops, especially small grains, that are resistant to diseases and insects.

Drainage.—Many areas of wet soils are idle or unproductive because of excess water on the surface or in the soil. Some of these can be made productive by draining. The open-ditch system is the most common in this county.

Erosion control.—Surface runoff water on soils having a natural slope, 1 to 2 percent or more, is an erosion hazard when the soil is cultivated. Contour cultivation, terraces, close-growing crops, and adequate fertilization are means commonly used for restraining surface runoff. Permanent waterways should be kept in grass.

Pasture management.—Experimental work on improved pastures at the Gulf Coast Experiment Substation at Fairhope shows that pastures of good quality can be attained with adequate fertilization and proper seeding. White clover and dallisgrass, crimson clover and ryegrass or oats, and Coastal bermudagrass, furnish good grazing for dairy cattle, beef cattle, hogs, and sheep. In recent years bahiagrass has come into wide use for pasture. It is particularly well suited to deep, droughty, sandy soils that have a low or very low available moisture-holding capacity. It grows better, however, on the low, moist soils.

Pasture plants are effective in holding the soil in place, and they are inexpensive to grow. They also add organic matter and prevent a sloping soil from eroding. Good pasture requires lime, phosphate, potash, and nitrogen. The kinds and amounts of these plant nutrients and amendments needed can be determined best by soil tests. Maintaining a vigorous cover is essential to a good pasture, and adequate fertilization and controlled grazing are important to this objective.

Many areas of poorly drained soils can be made productive of pasture. Areas of infertile, eroded soils of uplands, however, generally can be used more profitably as woodland than for pasture.

Some soils are cleared that have never been cultivated or were cultivated only long enough to establish a stand of grass. These soils are generally so low in fertility and so steep and erodible that it is difficult to maintain a productive sod and restrain erosion. Nevertheless, many areas of the more clayey soils can be restored or maintained under pasture if they are properly managed. Proper management here includes adding fertilizer, regulating grazing, controlling runoff water, controlling weeds and brush, and protecting the areas from fire. In some places disking or plowing to reestablish a stand of desirable plants is beneficial.

Weed and brush encroachment are significant limitations, especially in old, inadequately fertilized pastures. Fertilizing adequately, mowing, and using a chemical weedkiller are practical means of depressing unwanted plants.

Capability Groups of Soils

The capability classification is a grouping of soils that shows, in a general way, how suitable the soils are for most kinds of farming. It is a practical grouping based on limitations of the soils, the risk of damage when they are used, and the way they respond to treatment.

In this system all the kinds of soil are grouped at three levels, the capability class, subclass, and unit. The eight capability classes in the broadest grouping are designated by Roman numerals I through VIII. In class I are the soils that have few limitations, the widest range of use, and the least risk of damage when they are used. The soils in the other classes have progressively greater natural limitations. In class VIII are soils and landforms so rough, shallow, or otherwise limited that they do not produce worthwhile yields of crops, forage, or wood products.

The subclasses indicate major kinds of limitations within the classes. Within most of the classes, there can be as many as four subclasses. The subclass is indicated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numerals, for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* means that water in or on the soil will interfere with the growth of plants or with cultivation

(in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony, and *c*, used in only some parts of the country, indicates that the chief limitation is a climate that is too cold or too dry.

In class I there are no subclasses, because the soils of this class have few or no limitations. Class V can contain, at the most, only subclasses *w*, *s*, and *c* because the soils in it have little or no suceptibility to erosion but have other limitations that limit their use largely to pasture, range, woodland, or wildlife.

Within the subclasses are the capability units, groups of soils enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity and other responses to management. Thus, the capability unit is a convenient grouping of soils for making many statements about their management. Capability units are generally identified by numbers assigned locally, for example, IIe-11 or IIIe-12.

The capability units are not numbered consecutively in Baldwin County, because not all of the capability units used in Alabama are in this county. The soils in each unit have about the same limitations of use and require about the same treatment.

Soils are classified in capability classes, subclasses, and units in accordance with the degree and kind of their permanent limitations; but without consideration of major and generally expensive landforming that would change the slope, depth, or other charateristics of the soil; and without consideration of possible, but unlikely, major reclamation projects.

The eight classes in the capability system, and the subclasses and units in this county, are described in the list that follows:

Class I. Soils that have few limitations that restrict their use.
- (No subclasses.)
  - Unit I-11. Deep, well-drained, nearly level soils that have a friable or firm subsoil and are on uplands.
  - Unit I-12. Deep, well-drained, nearly level soils that have a friable or firm subsoil and are on uplands and terraces.

Class II. Soils that have some limitations that reduce the choice of plants or that require moderate conservation practices.
- Subclass IIe. Soils subject to moderate erosion if they are not protected.
  - Unit IIe-11. Deep, well-drained, very gently sloping soils that have a friable or firm subsoil.
  - Unit IIe-12. Deep, well-drained, very gently sloping soils that have a friable subsoil.
  - Unit IIe-13. Moderately deep, moderately well drained soil that has a clayey subsoil and is on stream terraces.
  - Unit IIe-16. Moderately well drained to somewhat poorly drained, very gently sloping soils.
- Subclass IIw. Soils that have moderate limitations because of excess water.
  - Unit IIw-11. Deep, moderately well drained or well drained, nearly level soil on local alluvium in draws and depressions.
  - Unit IIw-12. Deep, moderately well drained, nearly level soil on flood plains; subject to occasional flooding.
  - Unit IIw-16. Deep and moderately deep, moderately well drained, nearly level soils that have a weak fragipan or a high water table.
  - Unit IIw-17. Deep, somewhat poorly drained, nearly level soil that has a high water table.

Class III. Soils that have severe limitations that reduce the choice of plants, or require special conservation practices, or both.
- Subclass IIIe. Soils that are subject to severe erosion if they are cultivated and not protected.
  - Unit IIIe-11. Deep, gently sloping soils that have a friable to very firm subsoil.
  - Unit IIIe-12. Deep, gently sloping soils that have a friable subsoil.
  - Unit IIIe-15. Moderately deep, moderately well drained, very gently sloping or gently sloping soils.
  - Unit IIIe-16. Deep, moderately well drained or somewhat poorly drained, gently sloping soils.
- Subclass IIIw. Soils that have severe limitations because of excess water.
  - Unit IIIw-11. Deep, poorly drained or very poorly drained, nearly level soils in depressions and on terraces.
  - Unit IIIw-12. Moderately deep, somewhat poorly drained, nearly level or very gently sloping soils.
  - Unit IIIw-13. Deep, somewhat poorly drained to excessively drained, nearly level or very gently sloping soils that have a high water table or are subject to frequent flooding.
- Subclass IIIs. Soils that have severe limitations of moisture capacity or tilth.
  - Unit IIIs-11. Deep, moderately well drained to excessively drained, nearly level or very gently sloping soils.

Class IV. Soils that have very severe limitations that restrict the choice of plants, or that require very careful management, or both.
- Subclass IVe. Soils that are subject to very severe erosion if they are cultivated and not protected.
  - Unit IVe-15. Dominantly moderately deep or deep, moderately well drained to excessively drained, gently sloping or sloping soils.
- Subclass IVw. Soils that have very severe limitations for cultivation because of excess water.
  - Unit IVw-11. Deep and moderately deep, somewhat poorly drained to poorly drained, nearly level to gently sloping soils.
- Subclass IVs. Soils that have very severe limitations of stoniness, low moisture capacity, or other soil features.
  - Unit IVs-11. Deep, moderately well drained to excessively drained, gently sloping, sandy soils.
  - Unit IVs-19. Shallow, moderately well drained, very gently sloping soils that have a clayey subsoil.

Class V. Soils not likely to erode that have other limitations, impractical to remove, that limit their use largely to pasture or range, woodland, or wildlife food and cover.

Subclass Vw. Soils that are too wet for cultivation; drainage or protection not feasible.
Unit Vw-11. Moderately deep or deep, poorly drained, nearly level to sloping soils that have a sandy subsoil.
Unit Vw-12. Deep, moderately well drained to poorly drained, nearly level soils that are subject to frequent flooding.

Class VI. Soils that have severe limitations that make them generally unsuitable for cultivation and that limit their use largely to pasture or range, woodland, or wildlife food and cover.
Subclass VIe. Soils that are severely limited, chiefly by risk of erosion, if protective cover is not maintained.
Unit VIe-19. Shallow to deep, moderately well drained to excessively drained, gently sloping or sloping soils that have medium to rapid run off and a moderate to severe risk of erosion.
Subclass VIs. Soils generally unsuitable for cultivation and limited for other uses by their moisture capacity, stones, or other features.
Unit VIs-11. Deep, excessively drained, sloping, sandy soils.
Unit VIs-12. Moderately deep and deep, dominantly excessively drained, nearly level or very gently sloping, sandy or mucky soils.

Class VII. Soils that have very severe limitations that make them unsuited to cultivation and that restrict their use largely to grazing, woodland, or wildlife.
Subclass VIIe. Soils that are very severely limited, chiefly by risk of erosion, if protective cover is not maintained.
Unit VIIe-19. Sloping or moderately steep, eroded soils susceptible to further very severe erosion.
Subclass VIIw. Soils that are very severely limited by excess water.
Unit VIIw-11. Very poorly drained, nearly level soils that are subject to frequent and prolonged flooding.
Subclass VIIs. Soils that are very severely limited by moisture capacity, stones, or other soil features.
Unit VIIs-11. Strongly sloping, excessively drained, sandy soil.

Class VIII. Soils and landforms that have limitations that preclude their use for commercial production of plants and that restrict their use to recreation, wildlife, water supply, or esthetic purposes.
Subclass VIIIs. Sand or soil material that has little potential for production of vegetation.
Unit VIIIs-11. Coastal beaches, Riverwash, and Made land.

Management by capability units [3]

The soils of Baldwin County have been placed in capability units, which are management groups. The soils in any one unit need about the same kind of management, respond to management in about the same way, and have essentially the same limitations. The approximate total acreage and proportionate extent of the soils in each capability unit are shown in table 5.

TABLE 5.—*Approximate acreage and proportionate extent of the soils in each capability unit*

Capability unit	Area	Extent
	Acres	*Percent*
I-11	63, 832	6. 0
I-12	41, 706	3. 9
Total (I)	105, 538	9. 9
IIe-11	38, 898	3. 6
IIe-12	46, 767	4. 4
IIe-13	2, 007	. 2
IIe-16	28, 757	2. 7
Total (IIe)	116, 429	10. 9
IIw-11	4, 285	. 4
IIw-12	16, 758	1. 6
IIw-16	21, 949	2. 0
IIw-17	6, 079	. 6
Total (IIw)	49, 071	4. 6
Total (II)	165, 500	15. 5
IIIe-11	10, 362	1. 0
IIIe-12	10, 055	. 9
IIIe-15	12, 452	1. 2
IIIe-16	3, 386	. 3
Total (IIIe)	36, 255	3. 4
IIIw-11	12, 236	1. 1
IIIw-12	12, 990	1. 2
IIIw-13	17, 348	1. 6
Total (IIIw)	42, 574	3. 9
IIIs-11	143, 461	13. 4
Total (III)	222, 290	20. 7
IVe-15	13, 772	1. 3
IVw-11	78, 288	7. 3
IVs-11	38, 288	3. 6
IVs-19	10, 026	. 9
Total (IVs)	48, 314	4. 5
Total (IV)	140, 374	13. 1
Vw-11	41, 902	3. 9
Vw-12	100, 445	9. 4
Total (Vw)	142, 347	13. 3
VIe-19	85, 521	8. 0
VIs-11	10, 577	1. 0
VIs-12	10, 670	1. 0
Total (VIs)	21, 247	2. 0
Total (VI)	106, 768	10. 0
VIIe-19	44, 766	4. 2
VIIw-11	97, 865	9. 2
VIIs-11	632	. 1
Total (VII)	143, 263	13. 5
VIIIs-11	6, 029	. 6
Total soils	1, 032, 109	96. 7
Water, mines and pits, and miscellaneous	36, 051	3. 3
Total	1, 068, 160	100. 0

In the discussion of each capability unit, the soils in the unit are described as a group and their names are then listed. After that, suggestions are given for use and management. Specific statements about the amount of lime and kinds and amounts of fertilizer to use cannot be given in the suggestions for management, however, because the present needs of a soil vary according to its previous use and management. Therefore, lime and fertilizer should be applied according to the results of soil tests, which can be made by technicians at the Soil Testing Laboratory at Auburn University.

Recommendations concerning varieties of crops to grow and pasture mixtures to use can be obtained from publi-

[3] By E. H. McBRIDE, assisted by H. C. APPLETON, conservation agronomist; W. E. FRIEL, work unit conservationist, Soil Conservation Service; and F. C. TURNER, county extension agent, Auburn University.

cations of the Alabama Agricultural Experiment Station. Employees of the Agricultural Extension Service and of the Soil Conservation Service can help interpret the recommendations for the soils on individual farms. They can also give technical assistance in planning the preparation of the soils for field crops or pastures, the kind of cropping system to use, terracing, drainage, pasture management, and management of woodlands.

CAPABILITY UNIT I-11

This unit consists of deep, well-drained, nearly level soils of uplands. The soils have a surface layer of friable or very friable very fine sandy loam to loam that is 7 to 15 inches thick. Their subsoil is friable or firm sandy clay loam, loam, clay loam, or fine sandy clay loam. The Carnegie and Tifton soils have many small iron concretions throughout the profile.

The soils of this unit have favorable moisture, good tilth, and a deep root zone. They have moderate to slow permeability and a slow to moderate rate of infiltration. The available moisture-holding capacity is moderate, and the soils are medium acid to very strongly acid. They are low to medium in content of organic matter and in fertility. The hazard of erosion is slight. The following soils are in this capability unit:

Carnegie very fine sandy loam, 0 to 2 percent slopes.
Faceville fine sandy loam, 0 to 2 percent slopes.
Greenville loam, 0 to 2 percent slopes.
Magnolia fine sandy loam, 0 to 2 percent slopes.
Marlboro very fine sandy loam, 0 to 2 percent slopes.
Tifton very fine sandy loam, 0 to 2 percent slopes.

The soils of this unit are suited to many different crops, including corn, Irish potatoes, soybeans, sweetpotatoes, cotton, sweet corn, cabbage, turnips, watermelons, oats, wheat, and rye. They are also suited to pecans and to various horticultural specialty crops. Dallisgrass, bahiagrass, bermudagrass, ryegrass, white clover, and crimson clover are suitable plants to grow for pasture. Approximately 65 percent of the acreage is cultivated, 15 percent is used for pasture, and 20 percent is wooded.

Cropping systems that are suitable for these soils consists of (1) growing row crops continuously, (2) growing a row crop and a small grain in alternate years, and (3) growing a row crop and using the soils for pasture in alternate years.

These soils require large amounts of plant nutrients, lime, and organic matter. The kinds and amounts of fertilizer and lime to use vary widely because of differences in the needs of different crops. The requirements should be determined by testing the soils.

For most crops grown on these soils, tillage requirements are not exacting. Irish potatoes, however, will not tolerate excess water when the plants are small, even for short periods. Therefore, proper arrangement of the rows is necessary to supply drainage if Irish potatoes are grown.

CAPABILITY UNIT I-12

This unit consists of deep, well-drained, nearly level soils of uplands and of terraces along streams. The soils have a surface layer of loose or very friable fine sandy loam that is 9 to 15 inches thick. Their subsoil is friable sandy loam, heavy fine sandy loam, coarse sandy clay loam, or sandy clay loam.

Figure 12.—**A nursery crop growing on a field of Ruston fine sandy loam, 0 to 2 percent slopes.**

The soils of this unit have favorable moisture and good tilth. Their root zone is deep. The soils respond well to good management, particularly if adequate amounts of fertilizer are added, and they are easy to work and to protect from erosion. Permeability is variable, but water infiltrates at a moderate rate. The capacity for storing available moisture is moderate to low, and the soils are medium acid to very strongly acid. They are low to medium in content of organic matter and low in natural fertility. The following soils are in this capability unit:

Kalmia fine sandy loam, 0 to 2 percent slopes.
Norfolk fine sandy loam, 0 to 2 percent slopes.
Orangeburg fine sandy loam, 0 to 2 percent slopes.
Red Bay fine sandy loam, 0 to 2 percent slopes.
Ruston fine sandy loam, 0 to 2 percent slopes.

The soils of this unit are suited to a number of different crops, including field corn, sweet corn, cotton, soybeans, sweetpotatoes, Irish potatoes, cabbage, turnips, wheat, oats, and rye. They are also suited to pecans and to nursery crops (fig. 12). Suitable plants for pasture are bahiagrass, bermudagrass, ryegrass, and crimson clover. About 60 percent of the acreage is cultivated, 15 percent is in pasture, and 25 percent is wooded.

Cropping systems that are suitable for these soils consist of (1) growing row crops continuously, (2) growing a row crop and a small grain in alternate years, and (3) growing a row crop and using the soils for pasture in alternate years.

For most crops, these soils require large amounts of fertilizer. For pasture and for many other crops, they require a large amount of lime. The kinds and amounts of fertilizer and lime to use vary widely because of differences in the needs of different crops. The requirements should be determined by testing the soils.

Tillage requirements are not exacting on these soils. A supplementary system to dispose of excess water is not needed.

CAPABILITY UNIT IIe-11

This unit consists of deep, well-drained, very gently sloping soils of uplands. The soils in areas that are not eroded have a surface layer of friable or very friable fine sandy loam, very fine sandy loam, or loam that is 7 to 15 inches thick. Their subsoil is friable or firm sandy clay loam, loam, clay loam, or fine sandy clay loam. The eroded soils have a surface layer that is 2 to 11 inches thick. In places soil material from the upper part of the subsoil is mixed with the surface layer.

The soils of this unit are moderately to slowly permeable, and they have a moderate to slow rate of infiltration. Their capacity for storing available moisture is moderate. Runoff is medium, and there is a slight to moderate hazard of erosion. The soils are low in fertility and medium to low in content of organic matter. They are fairly easy to work and to protect from erosion. The following soils are in this capability unit:

Carnegie very fine sandy loam, 2 to 5 percent slopes.
Carnegie very fine sandy loam, 2 to 5 percent slopes, eroded.
Faceville fine sandy loam, 2 to 5 percent slopes.
Faceville fine sandy loam, 2 to 5 percent slopes, eroded.
Greenville loam, 2 to 5 percent slopes.
Greenville loam, 2 to 5 percent slopes, eroded.
Magnolia fine sandy loam, 2 to 5 percent slopes.
Magnolia fine sandy loam, 2 to 5 percent slopes, eroded.
Marlboro very fine sandy loam, 2 to 5 percent slopes.
Marlboro very fine sandy loam, 2 to 5 percent slopes, eroded.
Tifton very fine sandy loam, 2 to 5 percent slopes.
Tifton very fine sandy loam, 2 to 5 percent slopes, eroded.

The soils of this unit are suited to field corn, sweet corn, sweetpotatoes, Irish potatoes, soybeans, cotton, cabbage, watermelons, wheat, oats, and rye. They are also suited to pecans and to nursery crops. Plants suitable for pasture are dallisgrass, bahiagrass, ryegrass, white clover, and crimson clover. Approximately 55 percent of the acreage is cultivated, 15 percent is used for pasture, and 30 percent is wooded.

Cropping systems suitable for these soils are (1) growing a row crop and a small grain in alternate years, and (2) growing a row crop and using the soils for pasture in alternate years. Growing a small grain or pasture plants one-half of the time will help protect the soils from erosion.

These soils require large amounts of plant nutrients, lime, and organic matter. The kinds and amounts of fertilizer and lime to use vary widely because of differences in the needs of different crops. The requirements should be determined by testing the soils.

To protect these soils from erosion, plant all row crops on the contour. The soils need terraces, vegetated waterways, and other means of disposing of excess water. If suitable wells are located, the soils can be irrigated with sprinklers.

CAPABILITY UNIT IIe–12

This unit consists of deep, well-drained, very gently sloping soils of uplands and of terraces along streams. The soils on uneroded areas have a surface layer of loose or very friable fine sandy loam that is 9 to 15 inches thick. Their subsoil is friable sandy loam, heavy fine sandy loam, coarse sandy clay loam, or sandy clay loam. The soils in the eroded areas have a surface layer that ranges from 2 to 11 inches in thickness. In places the present surface layer is a mixture of soil material from the original surface layer and from the upper part of the subsoil.

The soils of this unit have good tilth and a deep root zone. They respond well to good management and are fairly easy to work and to protect from erosion. Permeability varies, but the rate of infiltration is moderate. The capacity for storing available moisture is moderate to high, and the soils are medium acid to very strongly acid. They are low in natural fertility and are low to medium in content of organic matter. Runoff is medium. The hazard of erosion is slight to moderate. The following soils are in this capability unit:

Cahaba fine sandy loam, 2 to 5 percent slopes.
Kalmia fine sandy loam, 2 to 5 percent slopes.
Norfolk fine sandy loam, 2 to 5 percent slopes.
Norfolk fine sandy loam, 2 to 5 percent slopes, eroded.
Orangeburg fine sandy loam, 2 to 5 percent slopes.
Orangeburg fine sandy loam, 2 to 5 percent slopes, eroded.
Red Bay fine sandy loam, 2 to 5 percent slopes.
Ruston fine sandy loam, 2 to 5 percent slopes.
Ruston fine sandy loam, 2 to 5 percent slopes, eroded.

The soils of this unit are suited to many different crops, including field corn, sweet corn, cotton, soybeans, sweetpotatoes, Irish potatoes, cabbage, turnips, wheat, oats, and rye. They are also suited to pecans and to nursery crops. Bahiagrass, bermudagrass, ryegrass, and crimson clover are suitable plants to grow for pasture. Approximately 50 percent of the acreage is cultivated, 20 percent is used for pasture, and 30 percent is wooded.

Cropping systems suitable for these soils consist of (1) growing a row crop and a small grain in alternate years, and (2) growing a row crop and using the soils for pasture in alternate years. Growing a small grain and pasture plants one-half of the time in the rotation will help to protect the soils from erosion.

These soils require large amounts of plant nutrients, lime, and organic matter. The kinds and amounts of fertilizer and lime to use vary widely because of differences in the needs of different crops. The requirements should be determined by testing the soils.

To protect these soils from erosion, plant all row crops on the contour. The soils need terraces, vegetated waterways, and other means of disposing of excess water. If suitable wells are located, the soils can be irrigated with sprinklers.

CAPABILITY UNIT IIe–13

Only one soil, Flint silt loam, 2 to 5 percent slopes, is in this capability unit. This soil is moderately deep, moderately well drained, and very gently sloping. It is on terraces along streams. The surface layer is friable silt loam or loam about 6 inches thick. The subsoil is friable or firm silty clay to clay.

This soil has a slow or very slow rate of infiltration and slow permeability. The available moisture-holding capacity is moderate to low, and the soil is strongly acid or very strongly acid. Runoff is medium, and the hazard of erosion is slight to moderate. The soil is low in organic matter and in natural fertility.

This soil is suited to corn, cotton, soybeans, oats, wheat, and rye. Dallisgrass, bahiagrass, bermudagrass, ryegrass, white clover, and crimson clover are suitable plants to grow for pasture. Approximately 80 percent of the acreage is wooded, 10 percent is cultivated, and 10 percent is used for pasture.

Cropping systems suitable for this soil consist of (1) growing a row crop and a small grain in alternate years, and (2) growing a row crop and using the soil for pasture in alternate years. Growing a small grain and pasture plants one-half of the time in the rotation will help to protect the soil from erosion.

This soil requires large amounts of plant nutrients, lime, and organic matter. The kinds and amounts of fertilizer and lime to use vary widely because of differ-

ences in the needs of different crops. The requirements should be determined by testing the soil.

This soil has rather exacting tillage requirements. It must be plowed carefully to prevent clodding. The soil has a tendency to be wet during periods of wet weather and very dry during periods of dry weather. It is cold and more adversely affected by extremes in weather conditions than the soils in capability units IIe–11 and IIe–12.

To protect this soil from erosion, plant crops on the contour. This soil also needs terraces, vegetated waterways, and other means of disposing of excess water.

CAPABILITY UNIT IIe–16

This unit consists of moderately deep and deep, moderately well drained to somewhat poorly drained, very gently sloping soils of uplands and of terraces along streams. The soils have a surface layer of very friable fine sandy loam or loam that is 8 to 15 inches thick. Their subsoil is very friable to firm sandy clay loam, sandy clay, sandy loam, or fine sandy clay loam. In some of the soils, there are concretions on the surface and in the profile.

The soils of this unit have moderate to very slow permeability and a slow to moderate rate of infiltration. The moisture-holding capacity is moderate, and the soils are strongly acid or very strongly acid. They are low in natural fertility and in content of organic matter. Runoff is medium, and there is a slight to moderate hazard of erosion. The following soils are in this capability unit:

Bowie fine sandy loam, 2 to 5 percent slopes.
Bowie fine sandy loam, 2 to 5 percent slopes, eroded.
Goldsboro fine sandy loam, 2 to 5 percent slopes.
Irvington loam, 2 to 5 percent slopes.
Izagora very fine sandy loam, 2 to 5 percent slopes.
Lynchburg fine sandy loam, 2 to 5 percent slopes.

The soils of this unit are suited to field corn, sweet corn, soybeans, cotton, cabbage, oats, wheat, and rye. Suitable plants for pasture are bahiagrass, bermudagrass, dallisgrass, ryegrass, white clover, and crimson clover. About 25 percent of the acreage is clutivated, 20 percent is in pasture, and 55 percent is wooded.

Cropping systems suitable for these soils consist of (1) growing a row crop and a small grain in alternate years, and (2) growing a row crop and using the soils for pasture in alternate years. Growing a small grain or pasture plants one-half of the time will help to protect the soils from erosion.

These soils require large amounts of plant nutrients, lime, and organic matter. The kinds and amounts of fertilizer and lime to use vary widely because of differences in the needs of different crops. The requirements should be determined by testing the soils.

These soils have rather exacting tillage requirements. They are cold in spring and are limited by excess water, seepage, a clayey substratum, and a fragipan. Therefore, plowing, planting, cultivating, and harvesting are sometimes delayed for short periods.

To protect these soils from erosion, plant crops on the contour. Because of their medium runoff and a slight to moderate hazard of erosion, the soils need terraces, vegetated waterways, and other means of disposing of excess water.

CAPABILITY UNIT IIw–11

Only one soil, Local alluvial land, is in this capability unit. This soil consists of deep, moderately well drained or well drained, nearly level alluvial material on bottoms or in small depressions on the uplands. The upper part is very friable loamy sand, sandy loam, or silt loam and extends to a depth of 13 inches. The lower part is friable sandy loam to sandy clay loam. The areas are subject to occasional flooding for short periods.

This soil is moderately permeable and has a moderate rate of infiltration. It is strongly acid, medium in content of organic matter, and moderate to high in natural fertility. The available moisture-holding capacity is moderate. Runoff is slow, and the hazard of erosion is slight.

This soil is suited to corn, soybeans, oats, wheat, and fall gardens. Dallisgrass, bahiagrass, and whiteclover are suitable plants to grow for pasture. Approximately 30 percent of the acreage is cultivated, 30 percent is used for pasture, and 40 percent is wooded.

Cropping systems suitable for this soil consist of (1) growing row crops continuously, (2) growing pasture plants continuously, (3) growing a row crop and a small grain in alternate years, and (4) growing a row crop and using the land for pasture in alternate years.

This soil receives fresh deposits of alluvial material each time it is flooded. Therefore, it requires only moderate to small amounts of plant nutrients, lime, and organic matter.

Plowing, planting, cultivating, and harvesting are sometimes delayed for short periods when areas of this soil are flooded or ponded. Where the soil is in small depressions, it is generally farmed with the surrounding soils. Where it occurs in drainageways in fields that are cultivated, it is used as a vegetated waterway. This soil is used for pasture if adjoining areas of sloping soils that drain onto it are used for pasture.

The soil needs vegetated waterways that include V- or W-type ditches. The ditches will help dispose of excess water.

CAPABILITY UNIT IIw–12

Only one soil, Iuka silt loam, is in this capability unit. This soil is on flood plains and is deep, moderately well drained, and nearly level. Its surface layer is friable silt loam and is 11 inches thick. The soil material below is very firm silty clay to silt loam. The soil is subject to occasional flooding for short periods.

This soil is slowly permeable, and it has a slow rate of infiltration. The available moisture-holding capacity is moderate, and the soil is strongly acid. It is moderate in content of organic matter and high in natural fertility.

This soil is suited to corn, soybeans, oats, wheat, and cotton. Dallisgrass, bahiagrass, and whiteclover are suitable plants to grow for pasture. This is one of the most fertile soils in the county. Only a small acreage is used for cultivated crops and pasture, however, because of the inaccessibility of the areas and the hazard of flooding. Approximately 80 percent of the acreage is wooded, 15 percent is used for pasture, and 5 percent is cultivated.

Cropping systems suitable for this soil consist of (1) growing row crops continuously, (2) growing pasture plants continuously, (3) growing a row crop and a small grain in alternate years, and (4) growing a row crop and using the soil for pasture in alternate years.

This soil receives fresh deposits of alluvial material each time it is flooded. Therefore, it requires only moderate to small amounts of plant nutrients, although it requires large amounts of lime and organic matter.

Plowing, planting, cultivating, and harvesting of the crops on this soil are sometimes delayed when the river bottoms are flooded. Although methods for disposing of excess water are generally not needed, the soil needs ditches in some areas that will drain the low, wet sloughs.

CAPABILITY UNIT IIw-16

This unit consists of deep and moderately deep, moderately well drained, nearly level soils of uplands and terraces. These soils have a surface layer of very friable fine sandy loam, very fine sandy loam, or loam that is 7 to 15 inches thick. Their subsoil is friable or very friable sandy loam, sandy clay loam, fine sandy clay loam, or loam. They have a fragipan and a very clayey substratum. Because of seepage, the water table is rather high, and it sometimes causes the profile to be excessively wet. Some of these soils have iron concretions in the profile.

The soils of this unit have moderate to very slow permeability and a slow to moderate rate of infiltration. They are strongly acid or very strongly acid, low to moderate in content of organic matter, and low in natural fertility. Their available moisture-holding capacity is moderate. Runoff is slow, and there is little or no hazard of erosion. The soils respond well to good management, particularly if adequate amounts of fertilizer are added. The following soils are in this capability unit:

Goldsboro fine sandy loam, 0 to 2 percent slopes.
Irvington loam, 0 to 2 percent slopes.
Izagora very fine sandy loam, 0 to 2 percent slopes.
Savannah very fine sandy loam, 0 to 2 percent slopes.

The soils in this unit are suited to many of the crops commonly grown in the county, including field corn, sweet corn, soybeans, Irish potatoes, sweetpotatoes, oats, wheat, and truck crops. Whiteclover, bahiagrass, and dallisgrass are suitable plants to grow for pasture. About 45 percent of the acreage is cultivated, 25 percent is used for pasture, and 30 percent is wooded.

Cropping systems that are suited to these soils consist of (1) growing a row crop continuously, (2) growing a row crop and a small grain in alternate years, and (3) growing a row crop and using the soils for pasture in alternate years.

These soils require large amounts of plants nutrients, lime, and organic matter. The kinds and amounts of fertilizer and lime to use vary widely because of differences in the needs of different crops. The requirements should be determined by testing the soils.

The tillage requirements of these soils depend upon the season. Plowing, planting, cultivating, and harvesting are sometimes delayed because of excess water. The soils are productive except in very wet years.

These soils need simple ditches that help to dispose of excess water. They also need proper row arrangement when crops are planted.

CAPABILITY UNIT IIw-17

Only one soil, Lynchburg fine sandy loam, 0 to 2 percent slopes, is in this capability unit. This soil is on uplands. It is deep, somewhat poorly drained, and nearly level. The surface layer is very friable fine sandy loam and is 10 inches thick. The subsoil is friable sandy loam.

This soil has moderate permeability and a moderate rate of infiltration. The available moisture-holding capacity is moderate to low, and the reaction is strongly acid or very strongly acid. Natural fertility and the content of organic matter are low. The water table is high. Runoff is slow, and there is little or no hazard of erosion.

This soil is suited to soybeans, corn, oats, wheat, and cabbage. Because of its somewhat poor drainage, it is not suited to pecans. Plants that are suitable for pasture are dallisgrass, bahiagrass, fescue, and whiteclover.

Cropping systems suitable for this soil consist of (1) growing row crops continuously, (2) growing a row crop and a small grain in alternate years, (3) growing a row crop and using the soil for pasture in alternate years, and (4) using the soil for pasture continuously.

This soil requires large amounts of fertilizer, lime, and organic matter. The kinds and amounts of fertilizer and lime to use vary widely because of differences in the needs of different crops. The requirements should be determined by testing the soils.

Excess water from seepage is the principal limitation of this soil. Plowing, planting, cultivating, and harvesting of crops are sometimes delayed because of excess water. Nevertheless, in dry years the yields of pasture and of some cultivated crops may exceed those on the better drained soils. This soil needs ditches to drain off surface water and to lower the water table. It is suited to sprinkler irrigation.

CAPABILITY UNIT IIIe-11

This unit consists of deep, well-drained, gently sloping soils of uplands. The soils that are not eroded have a surface layer of friable or very friable fine sandy loam, very fine sandy loam, or loam that is 7 to 15 inches thick. Their subsoil is friable to very firm sandy clay loam, loam, clay loam, or fine sandy clay loam. The soils that are eroded have a surface layer that is 2 to 11 inches thick. In places soil material from the upper part of the subsoil has been mixed into the surface layer.

The soils of this unit have a moderate to slow rate of infiltration and moderate to slow permeability. Their capacity for storing available moisture is low to moderate. They are medium acid to very strongly acid, medium to low in content of organic matter, and low in natural fertility. Runoff is medium, and the hazard of erosion is moderate. The following soils are in this capability unit:

Carnegie very fine sandy loam, 5 to 8 percent slopes.
Carnegie very fine sandy loam, 5 to 8 percent slopes, eroded.
Faceville fine sandy loam, 5 to 8 percent slopes.
Faceville fine sandy loam, 5 to 8 percent slopes, eroded.
Greenville loam, 5 to 8 percent slopes, eroded.
Magnolia fine sandy loam, 5 to 8 percent slopes, eroded.
Tifton very fine sandy loam, 5 to 8 percent slopes.
Tifton very fine sandy loam, 5 to 8 percent slopes, eroded.

The soils of this unit are suited to field corn, sweet corn, soybeans, sweetpotatoes, cotton, pecans, and truck crops. Dallisgrass, bahiagrass, bermudagrass, ryegrass, white clover, and crimson clover are plants that are suitable for pasture. Approximately 25 percent of the acreage is cultivated, 25 percent is in pasture, and 50 percent is wooded.

A cropping system that is suitable for these soils consists of growing a small grain or pasture plants two-thirds of the time and a row crop the rest of the time.

These soils require large amounts of plant nutrients, lime, and organic matter. The kinds and amounts of fertilizer to use vary widely because of differences in the needs of different crops. The requirements should be determined by testing the soils.

In most areas tillage requirements are not very exacting on these soils. Where the soils are eroded and have a clayey surface layer, however, they are more difficult to cultivate and to maintain than the soils in uneroded areas. The soils in such areas need larger amounts of organic matter than in areas that are not eroded.

To protect the soils from erosion, plant crops on the contour. The soils need terraces, vegetated waterways, and other systems for disposing of excess water. Because of the fairly strong slope, more rapid runoff, and slower rate of infiltration, these soils are more difficult to work and to protect from erosion than the soils in capability unit IIe–11.

CAPABILITY UNIT IIIe–12

This capability unit consists of deep, well-drained, gently sloping soils of uplands. The soils that are not eroded have a surface layer of loose or very friable fine sandy loam that is 9 to 15 inches thick. The subsoil is friable sandy loam, or heavy sandy loam, coarse sandy clay loam, or sandy clay loam. The surface layer of the soils that are eroded is 2 to 11 inches thick. In places the present surface layer is a mixture of soil material from the original surface layer and from the upper part of the subsoil.

The soils of this unit have favorable moisture, good tilth, and a deep root zone. Permeability is variable and infiltration is moderate. These soils are medium acid to very strongly acid, low to medium in content of organic matter, and low in natural fertility. They have more rapid runoff than the soils of capability unit IIe–12, and there is a greater hazard of erosion. Nevertheless, the soils are fairly easy to work and to protect from erosion. The following soils are in this capability unit:

Norfolk fine sandy loam, 5 to 8 percent slopes.
Orangeburg fine sandy loam, 5 to 8 percent slopes.
Ruston fine sandy loam, 5 to 8 percent slopes.
Ruston fine sandy loam, 5 to 8 percent slopes, eroded.

The soils of this unit are suited to a number of different crops, including field corn, sweet corn, soybeans, sweetpotatoes, cotton, pecans, and truck crops. Pasture plants that are suitable for these soils are bahiagrass, bermudagrass, ryegrass, and crimson clover. Approximately 5 percent of the acreage is cultivated, 5 percent is used for pasture, and 90 percent is wooded.

A cropping system that is suitable for these soils consists of growing a small grain or pasture plants two-thirds of the time and a row crop the rest of the time.

These soils require large amounts of plant nutrients, lime, and organic matter. The kinds and amounts of fertilizer to use vary widely because of differences in the needs of different crops. The requirements should be determined by testing the soils.

In most areas tillage requirements are not very exacting on these soils. In the eroded areas, however, the surface layer contains more clay than in uneroded areas. As a result, the soils are more difficult to cultivate and to maintain.

To protect the soils from erosion, plant crops on the contour. The soils need terraces (fig. 13), vegetated waterways, and other systems for disposing of excess water. Because of stronger slopes, more rapid runoff, and a slightly lower rate of infiltration, these soils are more difficult to work and to protect from erosion than the soils in capability unit IIe–12.

Figure 13.—**Parallel terraces that drain into a vegetated waterway on Ruston fine sandy loam, 5 to 8 percent slopes.**

CAPABILITY UNIT IIIe–15

This unit consists of moderately deep, moderately well drained, very gently sloping or gently sloping soils of uplands. The soils have a surface layer of very friable fine sandy loam that is 8 to 12 inches thick. Their subsoil is sandy clay loom, clay loam, or sandy clay. They have iron concretions and fragments of iron sandstone in the profile. The substratum is clayey and is at a depth of 23 to 36 inches.

The soils of this unit have moderate permeability in the upper horizons and slow or very slow permeability in the lower horizons. They have a slow to moderate rate of infiltration and low to moderate available moisture-holding capacity. The soils are strongly acid or very strongly acid, low in organic matter, and low in natural fertility. Runoff is medium, and the hazard of erosion is moderate. Because the clayey substratum is slowly or very slowly permeable, these soils are more susceptible to erosion than the soils of capability units IIIe–11 and IIIe–12. The following soils are in capability unit IIIe–15:

Bowie fine sandy loam, 5 to 8 percent slopes.
Bowie fine sandy loam, thin solum, 2 to 5 percent slopes.

These soils are suited to all of the crops commonly grown in the county, including soybeans, corn, oats, wheat, and cotton. Plants suitable for pasture are dallisgrass, bahiagrass, white clover, and crimson clover. About 90 percent of the acreage is wooded, 5 percent is cultivated, and 5 percent is used for pasture. A large part of the acreage is owned by companies that operate papermills, and it has never been used for cultivated crops.

Cropping systems suited to these soils consist of (1) growing a small grain or pasture plants two-thirds of the time and a row crop the rest of the time, and (2) using the soils for pasture continuously.

These soils require large amounts of fertilizer, lime, and organic matter. The kinds and amounts of fertilizer and lime to use vary widely because of differences in the

needs of different crops. The requirements should be determined by testing the soils.

These soils are easy to till, but they are limited by their mild slope, moderate to slow permeability, and moderate hazard of erosion. Therefore, if the soils are cultivated, crops need to be planted on the contour. The soils also need terraces that drain into vegetated outlets and other systems for disposing of excess water. They are suited to sprinkler irrigation.

CAPABILITY UNIT IIIe-16

This unit consists of deep, moderately well drained or somewhat poorly drained, gently sloping soils of uplands. These soils have a surface layer of very friable fine sandy loam that is 10 inches thick. Their subsoil is sandy loam, loam, or sandy clay loam.

The soils of this unit have moderate to slow permeability, a moderate rate of infiltration, and moderate to low capacity for storing available moisture. They are strongly acid or very strongly acid, low in organic matter, and low in natural fertility. Runoff is medium, and there is a moderate hazard of erosion. The following soils are in this capability unit:

Goldsboro fine sandy loam, 5 to 8 percent slopes.
Lynchburg fine sandy loam, 5 to 8 percent slopes.

These soils are suited to soybeans, field corn, sweet corn, oats, wheat, and pasture plants. They are not suited to pecans. Suitable plants to grow for pasture are dallisgrass, fescue, bahiagrass, and whiteclover. About 5 percent of the acreage is cultivated, 15 percent is used for pasture, and 80 percent is wooded.

Cropping systems that are suitable for these soils consist of (1) growing a row crop and using the soils for pasture in alternate years, (2) growing a row crop and a small grain in alternate years, and (3) growing pasture plants continuously.

These soils require large amounts of fertilizer, lime, and organic matter. The kinds and amounts of fertilizer and lime to use vary widely because of differences in the needs of different crops. The requirements should be determined by testing the soils.

These soils are rather wet as the result of seepage. Plowing, planting, cultivating, and harvesting are delayed during periods of wet weather.

These soils are limited in their use for cultivated crops by their moderate slope, excess moisture, medium runoff, and the moderate hazard of erosion. If they are cultivated, they will need terraces and vegetated waterways. They should also be tilled on the contour, and they require other methods for disposing of excess water.

CAPABILITY UNIT IIIw-11

This unit consists of deep, poorly drained or very poorly drained, nearly level soils on terraces along streams and in depressions in the uplands. The soils have a surface layer of very friable silt loam or firm silty clay loam that is 10 to 16 inches thick. The subsoil is friable to firm silty loam or clay.

The soils of this unit are strongly acid to extremely acid. They are medium to high in content of organic matter and are low in natural fertility. Their capacity for storing available moisture is moderate to low. These soils are limited in their use for cultivated crops by poor or very poor drainage, a slow or very slow rate of infiltration, moderate to very slow permeability, poor soil structure, and the hazard of flooding. The following soils are in this capability unit:

Grady soils.
Okenee soils.

If these soils are drained, they are fairly well suited to corn, soybeans, oats, and wheat. Plants that can be grown for pasture, if the soils are drained, are dallisgrass, fescue, bahiagrass, and whiteclover. Approximately 90 percent of the acreage is idle or in trees, 5 percent is cultivated, and 5 percent is in pasture. A small acreage of rice is grown on upland areas of the Grady soils.

If these soils are drained, suitable cropping systems are (1) growing pasture plants continuously, (2) growing a row crop and using the soils for pasture in alternate years, and (3) growing a row crop and a small grain in alternate years.

These soils require large amounts of fertilizer, lime, and organic matter. The kinds and amounts of fertilizer and lime to use vary widely because of differences in the needs of different crops. The requirements should be determined by testing the soils. After the soils are drained, add large amounts of organic matter to improve the soil structure and to prevent crusting and clodding.

Water stands for long periods on these soils, and little can be done with them until they are drained. Even after they are drained, however, plowing, planting, cultivating, and harvesting are sometimes delayed because of excess water. Many areas of Grady soils, particularly, are far away from an outlet, and ditches must be cut through areas of good agricultural soils to reach an outlet. This often takes as much acreage of good soils out of production as the drained area adds. Some of the areas have been drained, however, to protect the surrounding well-drained soils from flooding. Some of the depressions can be dug out and shaped to prevent flooding.

CAPABILITY UNIT IIIw-12

This unit consists of moderately deep, somewhat poorly drained, nearly level or very gently sloping soils on uplands and on terraces along streams. The surface layer of these soils is friable or very friable loam or very fine sandy loam that is about 7 inches thick. The subsoil is very friable to firm clay loam, sandy clay loam, silty clay loam, silty clay, or heavy clay. These soils have a weak fragipan and iron concretions in the profile.

The soils in this unit have a slow or very slow rate of infiltration and slow or very slow permeability. They are strongly acid or very strongly acid, low to medium in content of organic matter, and low in natural fertility. Their capacity for storing available moisture is low. Runoff is slow to medium, and the hazard of erosion is slight to moderate. The following soils are in this capability unit:

Flint, Wahee, and Leaf silt loams, 0 to 5 percent slopes.
Robertsdale loam.
Wahee silt loam, 0 to 2 percent slopes.
Wahee silt loam, 2 to 5 percent slopes.

These soils are suited to soybeans, field corn, sweet corn, oats, and wheat. Suitable plants to grow for pasture are dallisgrass, fescue, bahiagrass, and whiteclover. Nearly all of the acreage of Flint, Wahee, and Leaf silt loams, 0 to 5 percent slopes, is wooded, but a small acreage is in pasture and cultivated crops. Approximately one-third of the Robertsdale soil is cultivated, one-third is in

pasture, and one-third is wooded. Most of the acreage of the other Wahee soils is wooded, but a small part is in pasture and cultivated crops.

The Robertsdale soil occurs in areas highly developed for agriculture, and it is widely used for Irish potatoes and other truck crops. The Wahee soils and Flint, Wahee, and Leaf silt loams, 0 to 5 percent slopes, are used principally for timber and are in areas owned by large timber companies.

If these soils are drained, suitable cropping systems are (1) growing a row crop and using the soils for pasture in alternate years, (2) growing a row crop and a small grain in alternate years, and (3) growing row crops continuously.

The soils of this unit require large amounts of fertilizer, lime, and organic matter. The kinds and amounts of fertilizer and lime to use vary widely because of differences in the needs of different crops. The requirements should be determined by testing the soils. Large amounts of organic matter need to be turned under to maintain good structure and good tilth in the soils.

These soils are limited in their use for cultivated crops by slow permeability and excess water in the profile. Plowing, planting, cultivating, and harvesting are often delayed because the soils are wet. If the soils are to be used successfully for tilled crops, they need to be drained. Locating suitable outlets is difficult, however, particularly in the Robertsdale soil.

CAPABILITY UNIT IIIw-13

This unit consists of deep, somewhat poorly drained to excessively drained, nearly level or very gently sloping soils on uplands and on the flood plains of streams. The soils have a surface layer of loose or very friable loamy fine sand that is 15 to 21 inches thick. The subsoil is loose or very friable loamy fine sand, loamy sand, or sand. The soils are flooded frequently, or they have a high water table as the result of seepage.

The soils of this unit are rapidly permeable, and the rate of infiltration is rapid. The available moisture-holding capacity is low or very low, and the soils are strongly acid or very strongly acid. They are moderate in content of organic matter and low in natural fertility. There is little or no hazard of erosion. The following soils are in this capability unit:

Sandy alluvial land.
Scranton loamy file sand, 0 to 2 percent slopes.
Scranton loamy fine sand, 2 to 5 percent slopes.

The Scranton soils of this unit are suited to soybeans, corn, oats, and wheat. Plants suitable for pasture are bahiagrass, dallisgrass, and whiteclover. If the soils are drained, they respond well to good management and are fairly productive. Because of the hazard of flooding and the large deposits of very sandy material, Sandy alluvial land is probably best suited to corn and to pastures of bahiagrass. It is also suited to irrigated truck crops because it is close to flowing streams. About 90 percent of the acreage of soils in this unit is used for trees, 5 percent is used for pasture, and the rest is cultivated.

Cropping systems suitable for these soils are (1) growing a row crop and using the soils for pasture in alternate years, and (2) growing a row crop and a small grain in alternate years.

These soils require large amounts of fertilizer, lime, and organic matter. The kinds and amounts of fertilizer and lime to use vary widely because of differences in the needs of different crops. The requirements should be determined by testing the soils. These soils need less lime than finer textured soils. Because of the sandy texture of the soils in this unit, the fertilizer needs to be applied in split applications.

The soils in this unit are easy to work but difficult to improve because of their sandy texture, susceptibility to leaching, and low available moisture-holding capacity. Plowing, planting, cultivating, and harvesting are sometimes delayed because the soils are either too wet or too dry. The Scranton soils need drainage that will remove excess water.

CAPABILITY UNIT IIIs-11

This capability unit consists of deep, moderately well drained to excessively drained, nearly level or very gently sloping soils of uplands. The soils have a surface layer of loose or very friable loamy fine sand that is 8 to 18 inches thick. Their subsoil is loose or very friable loamy fine sand.

The soils of this unit are subject to severe leaching and are low or very low in available mositure-holding capacity. They have rapid permeability and a rapid rate of infiltration. The soils are strongly acid or very strongly acid, and they are low in content of organic matter and in natural fertility. The following soils are in this capability unit:

Eustis loamy fine sand, 0 to 5 percent slopes.
Klej loamy fine sand, 0 to 5 percent slopes.
Lakeland loamy fine sand, 0 to 5 percent slopes.

Plants that grow successfully on these soils must be deep rooted, or must grow during the seasons when rainfall is the heaviest, or both. The soils are suited to field corn, sweet corn, soybeans, oats, wheat, and cotton. Watermelons and cucumbers are often grown as the first crop after the soils are cleared, but they are not grown regularly on the same soils (fig. 14). About 20 percent of the acreage in this unit is cultivated, 20 percent is used for pasture, and 60 percent is wooded.

Cropping systems suitable for these soils are (1) growing a row crop and using the soils for pasture in alternate

Figure 14.—**Loblolly pine growing on a field of Klej loamy fine sand, 0 to 5 percent slopes. The area was cleared and planted to watermelons 1 year and then planted to loblolly pine.**

years, (2) growing a row crop and a small grain in alternate years, and (3) using the soils for pasture continuously. As much organic matter as feasible needs to be turned under to increase the water-holding capacity.

These soils generally require large amounts of fertilizer, but specific requirements ought to be determined by testing the soils for a particular crop. The soils need less lime than the finer textured soils. Fertilizer needs to be applied several times during the growing season.

The soils of this unit are easy to work and can be tilled soon after heavy rains. Crops that are planted in spring, however, are sometimes damaged by sand blown from exposed fields. Terraces and vegetated outlets are difficult to maintain on these soils. The rapid rate of infiltration and rapid permeability greatly reduce the amount of runoff.

CAPABILITY UNIT IVe-15

This unit consists of soils that are shallow or moderately deep and deep over variable parent material. The soils are moderately well drained to excessively drained and are gently sloping or sloping. They are on uplands. Their surface layer is loose or very friable loamy fine sand, fine sandy loam, or very fine sandy loam that is 8 to 15 inches thick. The subsoil is loose loamy fine sand, firm or friable sandy clay loam, or firm or very firm sandy clay.

The soils of this unit have a slow to moderate rate of infiltration, but their permeability varies. They are medium acid to very strongly acid and have a low to moderate available moisture-holding capacity. The content of organic matter is moderate to very low, and the soils are low in natural fertility. The following soils are in this capability unit:

Bowie fine sandy loam, 8 to 12 percent slopes.
Bowie fine sandy loam, thin solum, 5 to 8 percent slopes.
Bowie, Lakeland, and Cuthbert soils, 5 to 8 percent slopes.
Carnegie very fine sandy loam, 8 to 12 percent slopes.
Carnegie very fine sandy loam, 8 to 12 percent slopes, eroded.
Orangeburg fine sandy loam, 8 to 12 percent slopes, eroded.
Ruston fine sandy loam, 8 to 12 percent slopes.

Use of the soils of this unit for tilled crops is limited by the medium to rapid runoff. Some of the soils are eroded, and the hazard of further erosion is moderate to severe. The soils are probably best suited to pastures of bahiagrass and Coastal bermudagrass overplanted with crimson clover for grazing in winter. They can be used occasionally, however, to grow soybeans, corn, oats, or wheat. About 85 percent of the acreage is wooded, 10 percent is in pasture, and 5 percent is cultivated.

These soils require large amounts of fertilizer, lime, and organic matter. The kinds and amounts of fertilizer and lime to use vary widely because of differences in the needs of different crops. The requirements should be determined by testing the soils.

If these soils are cultivated, they need terraces that drain into vegetated waterways. Row crops ought to be planted on the contour.

CAPABILITY UNIT IVw-11

This unit consists of deep and moderately deep, somewhat poorly drained to poorly drained soils that are nearly level to gently sloping. The soils are on bottoms along streams and on terraces and uplands. They have a surface layer of friable or very friable sandy loam, fine sandy loam, very fine sandy loam, loam, or silt loam that is 2 to 9 inches thick. The subsoil is friable, firm, or very firm sandy loam, fine sandy loam, sandy clay loam, silty clay loam, silty clay, or clay.

The soils of this unit are moderately to very slowly permeable, and they have a moderate to slow rate of infiltration. Their capacity for storing available moisture is variable, and the soils are strongly acid or very strongly acid. They are low to moderate in content of organic matter and are variable in natural fertility. The following soils are in this unit:

Bibb and Mantachie soils, local alluvium.
Leaf silt loam.
Mantachie silt loam.
Myatt very fine sandy loam.
Rains fine sandy loam, 0 to 2 percent slopes.
Rains fine sandy loam, 2 to 5 percent slopes.
Rains fine sandy loam, 5 to 8 percent slopes.

Use of the soils of this unit for tilled crops is limited by poor drainage, a high water table, and the risk of flooding. If they are drained, they are suited to corn, soybeans, oats, and wheat. Where simple drainage has been provided, the soils are suited to pastures of dallisgrass, bahiagrass, and whiteclover. About 90 percent of the acreage is wooded, 5 percent is cultivated, and 5 percent is in pasture.

Without drainage, these soils are poorly suited to cultivated crops, but they respond well to good management and are fairly productive if they are properly drained. Even after they have been drained, however, plowing, planting, cultivating, and harvesting may be delayed for short periods because the soils are wet.

Cropping systems that are suitable for these soils are (1) growing a row crop and using the soils for pasture in alternate years, (2) growing a row crop and a small grain in alternate years, and (3) growing pasture continuously.

These soils require large amounts of fertilizer, lime, and organic matter. The kinds and amounts of fertilizer and lime to use vary widely because of differences in the needs of different crops. The requirements should be determined by testing the soils. Because Mantachie silt loam and Bibb and Mantachie soils, local alluvium, are alluvial soils, they require less fertilizer than the other soils of this unit.

CAPABILITY UNIT IVs-11

This unit consists of deep, sandy, moderately well drained to excessively drained, gently sloping soils of uplands. The soils have a surface layer of loose or very friable loamy fine sand that is 8 to 18 inches thick. The subsoil is loose or very friable loamy fine sand.

The soils of this unit have rapid permeability and a rapid rate of infiltration. The capacity for storing available moisture is low or very low. The soils are strongly acid or very strongly acid, low in content of organic matter, and low in natural fertility. The following soils are in this unit:

Eustis loamy fine sand, 5 to 8 percent slopes.
Klej loamy fine sand, 5 to 8 percent slopes.
Lakeland loamy fine sand, 5 to 8 percent slopes.

Use of these soils for cultivated crops is limited by their droughtiness, susceptibility to leaching, and the hazard of erosion. They are probably best suited to pastures of bahiagrass and Coastal bermudagrass for grazing in summer. Crimson clover is overseeded in the areas for graz-

ing in winter. The soils can be used for tilled crops about one-fourth of the time. They are suited to corn, soybeans, oats, and wheat. About 85 percent of the acreage is wooded, 10 percent is used for pasture, and 5 percent is used for tilled crops.

These soils respond fairly well to good management. They are fairly productive if rainfall is adequate during the growing season.

The soils require large amounts of plant nutrients, lime, and organic matter. The kinds and amounts of fertilizer and lime to use vary widely because of differences in the needs of different crops. The requirements should be determined by testing the soils. The fertilizer needs to be applied in split applications during the growing season.

CAPABILITY UNIT IVs-19

This capability unit consists of moderately well drained, very gently sloping soils of uplands. The soils are shallow over sandy or clayey material. They have a surface layer of very friable fine sandy loam that is 9 inches thick. Their subsoil is friable to very firm sandy clay.

The soils of this unit have slow or very slow permeability and a slow rate of infiltration. Their capacity for storing available moisture is very low, and the soils are strongly acid to extremely acid. They are low in content of organic matter and low in natural fertility. Nevertheless, they respond to good management and are fairly productive. The following soils are in this capability unit:

Cuthbert fine sandy loam, 2 to 5 percent slopes.
Sunsweet fine sandy loam, 2 to 5 percent slopes, eroded.

These soils are poorly suited to cultivated crops because of the slow rate of infiltration, slow permeability, medium runoff, and moderate hazard of erosion. They are probably best suited to pastures of bahiagrass andCoastal bermudagrass for grazing in summer, and the pastures can be overseeded with crimson clover for grazing in winter. The soils can be used for tilled crops about one-fourth of the time. They are fairly well suited to soybeans, corn, oats, wheat, and cotton. Approximately 80 percent of the acreage is wooded, 15 percent is in pasture, and 5 percent is cultivated.

Cropping systems suitable for these soils are (1) growing a row crop and using the soils for pasture in alternate years, (2) growing a row crop and a small grain in alternate years, and (3) using the soils for pasture continuously.

These soils require large amounts of fertilizer, lime, and organic matter. The kinds and amounts of fertilizer and lime to use vary widely because of differences in the needs of different crops. The requirements should be determined by testing the soils. If these soils are cultivated, they need terraces, vegetated waterways, and other means of disposing of excess water.

CAPABILITY UNIT Vw-11

This unit consists of moderately deep or deep, poorly drained, nearly level to sloping soils of uplands. The soils have a surface layer of nonsticky sand or loamy sand that is 4 to 30 inches thick. The material below the surface layer is nonsticky loamy sand or a layer of sand cemented with organic matter.

Permeability is rapid in the upper layers of these soils, but there is a seasonal high water table. The rate of infiltration is variable, and the capacity for storing available moisture is low. The soils are very strongly acid or extremely acid. They are very low in content of organic matter and low in natural fertility. The following soils are in this capability unit:

Leon sand.
Plummer loamy sand, 0 to 5 percent slopes.
Plummer loamy sand, 5 to 12 percent slopes.

These soils probably have the narrowest range of suitability for field crops of any soils in the county. Their major limitations are poor drainage because of seepage, low available moisture-holding capacity, low fertility, and sandy texture.

The soils can be used for pasture if they are drained, if the seedbed is prepared properly, and if adequate amounts of fertilizer and lime are added. Plants suitable for pasture are dallisgrass, bahiagrass, and whiteclover. The Plummer soils must be drained if they are to grow trees successfully. Ditches that are constructed on the steeper areas of Plummer soils are difficult to maintain because the sides slough severely. The Leon soil is used as a resort area. It must be drained before it can be used for homesites. About 40 percent of the acreage in this capability unit is wooded, 55 percent is idle, and 5 percent is used for pasture.

CAPABILITY UNIT Vw-12

This unit consists of deep, nearly level soils that are moderately well drained to poorly drained. The soils are on the flood plains of streams, mainly along the Alabama, Mobile, and Tensaw Rivers in this county. The upper part of the soil material is loam, silt loam, and silty clay loam. The material below is loam, silty clay, and clay. These soils are subject to frequent overflow, and the floodwaters remain for long periods. They have a permanently high water table because of seepage.

The soils of this unit have moderate to very slow permeability and a slow to moderate rate of infiltration. Their capacity for storing available moisture is moderate to high, and they are very strongly acid. The content of organic matter is medium to high, and fertility is moderate to high. The following soils are in this capability unit:

Wet clayey alluvial land.
Wet loamy alluvial land.

The soils of this unit are among the most fertile in the county, but their use is limited to pasture or woods because of the hazard of flooding and poor drainage. Dallisgrass, bahiagrass, and whiteclover are suitable plants to grow for pasture on these soils. Approximately 95 percent of the acreage is in hardwoods or in hardwoods mixed with pines, and 5 percent is used for pasture.

These soils receive fresh deposits of soil material each time they are flooded. The limitations of flooding and poor drainage would be impractical to remove without major reclamation projects. The requirements for lime and fertilizer should be determined by testing the soils.

CAPABILITY UNIT VIe-19

This unit consists of soils that are shallow to moderately deep or deep over various kinds of parent material. The soils are moderately well drained to excessively drained and are gently sloping or sloping. They are on uplands. Their surface layer is loose or very friable loamy fine sand

or fine sandy loam. The subsoil is loose loamy fine sand to friable or firm sandy clay loam to sandy clay.

In most areas the soils of this unit have slow permeability and a slow rate of infiltration. The capacity for storing available moisture is moderate to low, and the soils are strongly acid to extermely acid. They are low in content of organic matter and low in natural fertility. Runoff is medium to rapid, and the hazard of erosion is moderate to severe. The following soils are in this capability unit:

Bowie, Lakeland, and Cuthbert soils, 8 to 12 percent slopes.
Bowie, Lakeland, and Cuthbert soils, 8 to 12 percent slopes, eroded.
Cuthbert fine sandy loam, 5 to 8 percent slopes.
Cuthbert fine sandy loam, 8 to 12 percent slopes.
Cuthbert, Bowie, and Sunsweet soils, 5 to 8 percent slopes.
Cuthbert, Bowie, and Sunsweet soils, 8 to 12 percent slopes.
Sunsweet fine sandy loam, 5 to 8 percent slopes, eroded.

These soils are probably best suited to trees or to pastures of deep-rooted plants and plants that tolerate drought, including bahiagrass and Coastal bermudagrass. The soils in pasture require split applications of a complete fertilizer each year. The soils need lime if legumes are grown. After the pastures are well established, they can be overseeded with crimson clover for grazing in winter. About 95 percent of the acreage is wooded, and the rest is used for pasture.

CAPABILITY UNIT VIs-11

This unit consists of deep, excessively drained, sloping, sandy soils of uplands. The soils have a surface layer of loose or very friable loamy fine sand that is 8 to 12 inches thick. Their subsoil is also loose or very friable loamy fine sand.

The soils of this unit have rapid permeability and a rapid rate of infiltration. The capacity for storing available moisture is low, and the soils are strongly acid or very strongly acid. They are low in content of organic matter and in natural fertility. Runoff is rapid, and there is a moderate to severe hazard of erosion. The following soils are in this capability unit:

Eustis loamy fine sand, 8 to 12 percent slopes.
Lakeland loamy fine sand, 8 to 12 percent slopes.

These soils are probably best suited to trees and pasture because of their low moisture-holding capacity, susceptibility to leaching, droughtiness, and moderate to severe hazard of erosion. Suitable plants to grow for pasture are bahiagrass, Coastal bermudagrass, and other deep-rooted plants that tolerate drought. The soils in pasture require split applications of a complete fertilizer. If clover is grown, the soils need lime. After the pastures are well established, they can be overseeded with crimson clover for grazing in winter. The clover will also add nitrogen to the soils.

CAPABILITY UNIT VIs-12

This unit consists of moderately deep and deep, poorly drained and excessively drained soils that are nearly level or very gently sloping. The soils are sandy or mucky and are on uplands. All of them, except Muck, have a surface layer and a subsoil of loose or nonsticky sand.

These soils have variable permeability and a rapid rate of infiltration. Their capacity for storing available moisture is very low, and they are very strongly acid. The content of organic matter is low, and the soils are low in natural fertility. Muck is extremely acid and high in content of organic matter. The following soils are in this capability unit:

Lakewood sand, 0 to 5 percent slopes.
St. Lucie sand, 0 to 5 percent slopes.
St. Lucie-Leon-Muck complex.

The soils of this unit are probably best suited to trees because of their low moisture-holding capacity, susceptibility to severe leaching, low fertility, and very sandy texture. They are subject to erosion by wind and water and need to be stabilized by keeping them covered with trees and other vegetation. The soils are near the Gulf of Mexico and Mobile Bay. They are used mainly as resort areas and as sites for summer cottages. Approximately 95 percent of the acreage is wooded, and the rest is used for pasture.

CAPABILITY UNIT VIIe-19

This unit consists of soils that are very shallow and shallow or moderately deep and deep over variable parent material. The soils are moderately well drained to excessively drained and are eroded. They are sloping or moderately steep and are on uplands. In most places they are eroded and have a surface layer that is varible in texture. In some places the surface layer is loamy fine sand, and in other places it consists of clay from the former subsoil. Some areas have severe gullies. The subsoil ranges from loamy fine sand to sandy clay and clay.

The soils of this unit have very rapid or rapid runoff. The hazard of further erosion is serious. The following soils are in this capability unit:

Bowie, Lakeland, and Cuthbert soils, 12 to 25 percent slopes, eroded.
Cuthbert fine sandy loam, 12 to 17 percent slopes.
Cuthbert, Bowie, and Sunsweet soils, 12 to 17 percent slopes, eroded.
Gullied land.
Sunsweet fine sandy loam, 8 to 17 percent slopes, eroded.

These soils are probably best suited to trees because of their rapid runoff and the severe hazard of erosion. In areas where gullies are still active, diversion ditches should be constructed. These ditches will carry runoff water away from the heads of gullies and into areas that have better cover. All of the acreage is wooded.

CAPABILITY UNIT VIIw-11

This unit consists of deep, very poorly drained, nearly level soils on bottom lands and in swamps and marshes. The soils are variable in texture. In most places they have a surface layer of friable to sticky muck, mucky loam, loam, silt loam, clay loam, or silty clay loam that is 4 to 42 inches thick. The subsoil is loamy sand, clay loam, sandy clay, or silty clay. These soils are subject to frequent and prolonged flooding by tidal waters. They have a high water table. The following soils are in this capability unit:

Hyde and Bayboro soils and Muck.
Swamp.
Tidal marsh.

These soils are very severely limited as the result of excess water from flooding, tidal waters, and a high water table. Water is at or near the surface most of the time. Before the soils can be used for crops or pasture, they need major reclamation and a system to control the water.

Hyde and Bayboro soils and Muck, and Swamp are probably best suited to hardwoods and to use as wildlife areas. Tidal marsh is suited only to wildlife and range. Approximately 75 percent of the acreage in this unit is wooded, and 25 percent is covered by marsh grasses.

CAPABILITY UNIT VIIs-11

Only one soil, Lakeland loamy fine sand, 12 to 17 percent slopes, is in this capability unit. This soil is on uplands and is deep, excessively drained, and strongly sloping. Both its surface layer and subsoil are loose loamy fine sand.

This soil is rapidly permeable, and it has a rapid rate of infiltration. The available moisture-holding capacity is low, and the soil is very strongly acid. This soil is low in content of organic matter and in natural fertility. Runoff is rapid, and the hazard of erosion is serious.

This soil is probably best suited to trees because of its strong slope, rapid runoff, and severe hazard of erosion. All of the acreage is wooded.

CAPABILITY UNIT VIIIs-11

This capability unit consists of sandy beaches, deposits of sand in and along streams, and soil material that has been pumped from areas covered by water and spread over nearby areas of marsh. The soils are sandy and have no profile development. The following soils are in this capability unit:

Coastal beaches.
Made land.
Riverwash.

These soils have no value for agriculture. They are used for recreational areas, building sites, and wildlife habitats, and they are probably best suited to those uses.

Estimated Yields

Table 6 lists, for each soil, the estimated average yield per acre of the principal crops grown in Baldwin County under two levels of management. In columns A are yields that can be expected under common management, or management provided by most farmers in the county. In columns B are yields that can be expected under improved management.

Under common management, or management under which the yields in columns A are expected, (1) the amount of fertilizer added is normally not sufficient to produce maximum yields; (2) lime is seldom added and green-manure crops are seldom turned under; (3) row crops are grown continuously for long periods of time; (4) runoff water is not controlled, and the loss of soil and plant nutrients is not kept to a minimum; (5) improved crop varieties and certified seed are not always used; (6) overgrazing is common; and (7) weeds, insects, and diseases are not adequately controlled.

Under improved management, or management under which the yields in columns B are expected, (1) fertilizer, manure, and lime are added according to the needs indicated by soil tests; (2) cropping systems suggested in the descriptions of capability units are followed; (3) water is disposed of by providing terraces and grassed waterways or by field borders, contour cultivation, and artificial drainage; (4) seedbeds are prepared and seeded properly; (5) good crop varieties and plant mixtures are used at proper planting rates; (6) diseases, insects, and undesirable plants are controlled; and (7) grazing is regulated.

Use and Management of Woodland[4]

A mixture of pines and hardwoods originally covered nearly all of Baldwin County. On uplands the stand consisted mainly of pines and hardwoods. On the terraces mixed hardwoods and pines were dominant, and on the bottom lands there was a mixture of hardwoods and a few pines. Cutting the trees for lumber, clearing for agriculture, and using the areas for building sites have reduced the acreage in woodlands to 764,699 acres, or about 74 percent of the total land area in the county (fig. 15).

Figure 15.—**A forest of pines along a highway in Baldwin County. The firelane between the highway and the trees helps protect the trees from fires started along the road.**

The largest forested acreage in the county at the present time consists of forests on uplands, mainly pines and a mixture of pines and hardwoods. Loblolly, longleaf, shortleaf, and slash pines are the dominant kinds of pine on the uplands, and hickory and oak are the principal kinds of hardwoods.

The second largest forested acreage in the county consists of terraces along streams, the lower slopes of uplands, and other areas that have a good supply of moisture but that are not on river bottoms. These areas have a forest cover of pines and mixed hardwoods. Slash, loblolly, shortleaf, longleaf, and some spruce pine are the principal kinds of pine. The stand in places includes a mixture of gum, oak, hickory, bay, maple, and yellow-poplar. In some places there is a pure stand consisting of one species. In other places the stand consists of mixed species.

The third largest forested acreage consists of the flood plains and bottom lands along the Mobile, Tensaw, Fish, and Styx Rivers. The main stand on these areas consists of mixed hardwoods with only a scattering of pines.

[4] By W. C. AIKEN, woodland conservationist, and LELAND H. BURGESS, soil scientist, Soil Conservation Service.

TABLE 6.—*Estimated average yields per acre of*

[Yields in columns A are those to be expected under common management, and yields in columns B, those to be expected under

Soil	Capability unit	Soybeans		Potatoes		Corn	
		A	B	A	B	A	B
		Bu.	*Bu.*	*100-lb. bags*	*100-lb. bags*	*Bu.*	*Bu.*
Bibb and Mantachie soils, local alluvium	IVw-11	15	20			45	80
Bowie fine sandy loam, 2 to 5 percent slopes	IIe-16	21	27			51	61
Bowie fine sandy loam, 2 to 5 percent slopes, eroded	IIe-16	18	25			45	56
Bowie fine sandy loam, 5 to 8 percent slopes	IIIe-15	15	23			39	51
Bowie fine sandy loam, 8 to 12 percent slopes	IVe-15	10	19			27	41
Bowie fine sandy loam, thin solum, 2 to 5 percent slopes	IIIe-15	17	23			43	53
Bowie fine sandy loam, thin solum, 5 to 8 percent slopes	IVe-15	12	19			37	48
Bowie, Lakeland, and Cuthbert soils, 5 to 8 percent slopes	IVe-15	8	15			29	40
Bowie, Lakeland, and Cuthbert soils, 8 to 12 percent slopes	VIe-19						
Bowie, Lakeland, and Cuthbert soils, 8 to 12 percent slopes, eroded	VIe-19						
Bowie, Lakeland, and Cuthbert soils, 12 to 25 percent slopes, eroded	VIIe-19						
Cahaba fine sandy loam, 2 to 5 percent slopes	IIe-12	24	29			49	60
Carnegie very fine sandy loam, 2 to 5 percent slopes	IIe-11	25	31	105	130	55	66
Carnegie very fine sandy loam, 0 to 2 percent slopes	I-11	28	33	130	140	61	71
Carnegie very fine sandy loam, 2 to 5 percent slopes, eroded	IIe-11	22	29	100	120	49	61
Carnegie very fine sandy loam, 5 to 8 percent slopes	IIIe-11	20	28			43	56
Carnegie very fine sandy loam, 5 to 8 percent slopes, eroded	IIIe-11	15	26			37	51
Carnegie very fine sandy loam, 8 to 12 percent slopes	IVe-15	13	23			26	41
Carnegie very fine sandy loam, 8 to 12 percent slopes, eroded	IVe-15	7	18			30	46
Coastal beaches	VIIIs-11						
Cuthbert fine sandy loam, 5 to 8 percent slopes	VIe-19						
Cuthbert fine sandy loam, 2 to 5 percent slopes	IVs-19	13	19			30	40
Cuthbert fine sandy loam, 8 to 12 percent slopes	VIe-19						
Cuthbert fine sandy loam, 12 to 17 percent slopes	VIIe-19						
Cuthbert, Bowie, and Sunsweet soils, 5 to 8 percent slopes	VIe-19						
Cuthbert, Bowie, and Sunsweet soils, 8 to 12 percent slopes	VIe-19						
Cuthbert, Bowie, and Sunsweet soils, 12 to 17 percent slopes, eroded	VIIe-19						
Eustis loamy fine sand, 0 to 5 percent slopes	IIIs-11	15	20			30	45
Eustis loamy fine sand, 5 to 8 percent slopes	IVs-11	9	15			19	35
Eustis loamy fine sand, 8 to 12 percent slopes	VIs-11						
Faceville fine sandy loam, 0 to 2 percent slopes	I-11	29	34	135	145	63	73
Faceville fine sandy loam, 2 to 5 percent slopes	IIe-11	26	32	120	135	57	68
Faceville fine sandy loam, 2 to 5 percent slopes, eroded	IIe-11	23	30	105	125	51	63
Faceville fine sandy loam, 5 to 8 percent slopes	IIIe-11	21	29			45	58
Faceville fine sandy loam, 5 to 8 percent slopes, eroded	IIIe-11	18	27			39	53
Flint silt loam, 2 to 5 percent slopes	IIe-13	15	21			38	48
Flint, Wahee, and Leaf silt loams, 0 to 5 percent slopes	IIIw-12	13	19			34	43
Goldsboro fine sandy loam, 0 to 2 percent slopes	IIw-16	20	25	115	125	50	60
Goldsboro fine sandy loam, 2 to 5 percent slopes	IIe-16	17	23			44	55
Goldsboro fine sandy loam, 5 to 8 percent slopes	IIIe-16	14	21			32	45
Grady soils	IIIw-11	0	15			0	35
Greenville loam, 0 to 2 percent slopes	I-11	26	31	125	135	59	69
Greenville loam, 2 to 5 percent slopes	IIe-11	23	29	110	125	53	64
Greenville loam, 2 to 5 percent slopes, eroded	IIe-11	20	27	95	115	47	59
Greenville loam, 5 to 8 percent slopes, eroded	IIIe-11	16	26			36	49
Gullied land	VIIe-19						
Hyde and Bayboro soils and Muck	VIIw-11						
Irvington loam, 0 to 2 percent slopes	IIw-16	26	31	135	145	59	69
Irvington loam, 2 to 5 percent slopes	IIe-16	23	29	120	135	53	64
Iuka silt loam	IIw-12	20	40			75	90
Izagora very fine sandy loam, 2 to 5 percent slopes	IIe-16	16	22			42	53
Izagora very fine sandy loam, 0 to 2 percent slopes	IIw-16	19	24			48	58
Kalmia fine sandy loam, 0 to 2 percent slopes	I-12	25	30			57	67
Kalmia fine sandy loam, 2 to 5 percent slopes	IIe-12	22	28			51	62
Klej loamy fine sand, 0 to 5 percent slopes	IIIs-11	18	23			33	48
Klej loamy fine sand, 5 to 8 percent slopes	IVs-11	13	18			27	43
Lakeland loamy fine sand, 0 to 5 percent slopes	IIIs-11	16	21			31	46
Lakeland loamy fine sand, 5 to 8 percent slopes	IVs-11	10	16			20	36
Lakeland loamy fine sand, 8 to 12 percent slopes	VIs-11						
Lakeland loamy fine sand, 12 to 17 percent slopes	VIIs-11						
Lakewood sand, 0 to 5 percent slopes	VIs-12						
Leaf silt loam	IVw-11	8	15			21	35
Leon sand	Vw-11						
Local alluvial land	IIw-11	20	30			65	90
Lynchburg fine sandy loam, 0 to 2 percent slopes	IIw-17	15	21			40	50
Lynchburg fine sandy loam, 2 to 5 percent slopes	IIe-16	13	19			35	45
Lynchburg fine sandy loam, 5 to 8 percent slopes	IIIe-16	11	17			30	40

See footnotes at end of table.

principal crops under two levels of management

improved management. Dashed lines indicate that the soil is not suited to the crop specified or that the crop is not commonly grown]

Oats		Wheat		Cotton (lint)		Pasture		Watermelons		Pecans		Cabbage		Sweet corn	
A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
Bu.	*Bu.*	*Bu.*	*Bu.*	*Lb.*	*Lb.*	*Cow-acre-days* [1]	*Cow-acre-days* [1]	*Tons*	*Tons*	*Lb.*	*Lb.*	*Hampers*	*Hampers*	*Crates* [2]	*Crates* [2]
25	40	13	17	----	----	260	310	----	----	----	----	----	----	----	----
42	52	17	22	345	550	220	270	----	----	----	----	----	----	----	----
37	48	14	20	290	500	205	260	----	----	----	----	----	----	----	----
32	44	11	18	235	450	190	250	----	----	----	----	----	----	----	----
18	32	5	14	120	350	160	230	----	----	----	----	----	----	----	----
34	44	15	20	315	520	200	250	----	----	----	----	----	----	----	----
29	40	9	16	205	420	180	240	----	----	----	----	----	----	----	----
22	33	5	12	195	400	130	210	----	----	----	----	----	----	----	----
----	----	----	----	----	----	110	180	----	----	----	----	----	----	----	----
----	----	----	----	----	----	80	150	----	----	----	----	----	----	----	----
----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
40	51	16	22	360	615	220	275	5	7	190	390	100	200	50	100
46	57	20	26	405	650	235	290	5	7	230	430	140	240	70	120
51	61	23	28	430	680	250	300	6	8	330	530	190	290	95	145
41	53	17	24	340	600	210	280	----	----	----	----	----	----	----	----
36	49	14	22	285	550	205	270	----	----	----	----	----	----	----	----
31	45	11	20	230	500	190	260	----	----	----	----	----	----	----	----
26	41	8	18	185	450	175	250	----	----	----	----	----	----	----	----
21	37	5	16	----	----	160	240	----	----	----	----	----	----	----	----
----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
----	----	----	----	----	----	140	200	----	----	----	----	----	----	----	----
26	35	13	18	265	430	170	220	----	----	----	----	----	----	----	----
----	----	----	----	----	----	110	180	----	----	----	----	----	----	----	----
----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
----	----	----	----	----	----	140	200	----	----	----	----	----	----	----	----
----	----	----	----	----	----	110	180	----	----	----	----	----	----	----	----
----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
28	40	10	16	190	400	125	175	4	6	----	----	----	----	----	----
17	30	7	14	130	350	115	165	3	5	----	----	----	----	----	----
----	----	----	----	----	----	105	155	----	----	----	----	----	----	----	----
53	63	24	29	415	665	255	305	6	8	330	530	190	290	95	145
48	59	21	27	380	635	240	295	5	7	230	430	140	240	70	120
43	55	18	25	325	585	225	285	----	----	----	----	----	----	----	----
38	51	15	23	270	535	210	275	----	----	----	----	----	----	----	----
33	47	13	21	215	485	195	365	----	----	----	----	----	----	----	----
31	40	13	18	265	470	170	220	----	----	----	----	----	----	----	----
28	36	12	16	240	420	190	250	----	----	----	----	----	----	----	----
40	50	15	20	340	540	250	300	----	----	----	----	----	----	75	125
35	46	12	18	305	510	235	290	----	----	----	----	----	----	50	100
26	38	9	16	195	410	210	270	----	----	----	----	----	----	----	----
0	24	0	12	----	----	0	250	----	----	----	----	----	----	----	----
49	59	22	27	425	675	245	295	6	8	310	510	170	270	85	135
44	55	19	25	370	645	230	285	5	7	210	410	120	220	60	110
39	51	16	23	335	595	215	275	----	----	----	----	----	----	----	----
35	47	13	21	225	495	185	255	----	----	----	----	----	----	----	----
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49	59	22	27	410	590	260	310	----	----	----	----	190	290	95	145
43	54	19	25	375	560	245	300	----	----	----	----	----	----	----	----
45	65	20	30	250	500	260	310	----	----	----	----	----	----	----	----
33	44	11	17	305	510	235	290	----	----	----	----	----	----	----	----
38	48	14	19	340	540	250	300	----	----	----	----	----	----	----	----
47	57	20	25	390	590	240	290	5	7	300	500	160	260	80	130
42	53	17	23	355	560	225	280	4	6	200	400	110	210	55	105
31	43	12	18	170	380	135	185	----	----	----	----	----	----	----	----
20	33	9	16	110	330	125	175	----	----	----	----	----	----	----	----
29	41	11	17	180	390	130	180	4	6	----	----	----	----	----	----
18	31	9	15	120	340	120	170	3	5	----	----	----	----	----	----
----	----	----	----	----	----	110	160	----	----	----	----	----	----	----	----
----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
19	31	7	13	140	390	210	270	----	----	----	----	----	----	----	----
----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
35	50	16	21	----	----	260	310	----	----	----	----	----	----	----	----
30	40	10	16	280	480	250	300	----	----	----	----	190	290	----	----
26	36	8	14	250	450	240	290	----	----	----	----	----	----	----	----
18	28	6	12	150	350	230	280	----	----	----	----	----	----	----	----

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TABLE 6.—*Estimated average yields per acre of*

Soil	Capability unit	Soybeans		Potatoes		Corn	
		A	B	A	B	A	B
		Bu.	*Bu.*	*100-lb. bags*	*100-lb. bags*	*Bu.*	*Bu.*
Made land	VIIIs-11						
Magnolia fine sandy loam, 0 to 2 percent slopes	I-11	28	33	130	140	61	71
Magnolia fine sandy loam, 2 to 5 percent slopes	IIe-11	25	31	115	130	55	66
Magnolia fine sandy loam, 2 to 5 percent slopes, eroded	IIe-11	22	29	100	120	49	61
Magnolia fine sandy loam, 5 to 8 percent slopes, eroded	IIIe-11	16	26			38	51
Mantachie silt loam	IVw-11	10	35			40	80
Marlboro very fine sandy loam, 0 to 2 percent slopes	I-11	30	35	140	150	65	75
Marlboro very fine sandy loam, 2 to 5 percent slopes	IIe-11	27	33	125	140	59	70
Marlboro very fine sandy loam, 2 to 5 percent slopes, eroded	IIe-11	24	31	110	130	53	65
Myatt very fine sandy loam	IVw-11	6	14			17	33
Norfolk fine sandy loam, 2 to 5 percent slopes	IIe-12	22	28	100	110	51	62
Norfolk fine sandy loam, 0 to 2 percent slopes	I-12	25	30	110	120	57	67
Norfolk fine sandy loam, 2 to 5 percent slopes, eroded	IIe-12	19	26			45	57
Norfolk fine sandy loam, 5 to 8 percent slopes	IIIe-12	16	24			39	52
Okenee soils	IIIw-11	6	15			10	35
Orangeburg fine sandy loam, 0 to 2 percent slopes	I-12	23	28	100	110	53	63
Orangeburg fine sandy loam, 2 to 5 percent slopes	IIe-12	20	26	90	100	47	58
Orangeburg fine sandy loam, 2 to 5 percent slopes, eroded	IIe-12	17	24			41	53
Orangeburg fine sandy loam, 5 to 8 percent slopes	IIIe-12	15	23			35	48
Orangeburg fine sandy loam, 8 to 12 percent slopes, eroded	IVe-15	7	16			24	38
Plummer loamy sand, 0 to 5 percent slopes	Vw-11						
Plummer loamy sand, 5 to 12 percent slopes	Vw-11						
Rains fine sandy loam, 0 to 2 percent slopes	IVw-11	0	14			0	33
Rains fine sandy loam, 2 to 5 percent slopes	IVw-11	0	12			0	31
Rains fine sandy loam, 5 to 8 percent slopes	IVw-11	0	10			0	29
Red Bay fine sandy loam, 0 to 2 percent slopes	I-12	22	27	95	105	51	61
Red Bay fine sandy loam, 2 to 5 percent slopes	IIe-12	19	25	85	95	45	56
Riverwash	VIIIs-11						
Robertsdale loam	IIIw-12	21	29	125	135	52	67
Ruston fine sandy loam, 2 to 5 percent slopes	IIe-12	21	27	95	105	49	60
Ruston fine sandy loam, 0 to 2 percent slopes	I-12	24	29	105	115	55	65
Ruston fine sandy loam, 2 to 5 percent slopes, eroded	IIe-12	18	25			43	55
Ruston fine sandy loam, 5 to 8 percent slopes	IIIe-12	16	24			37	50
Ruston fine sandy loam, 5 to 8 percent slopes, eroded	IIIe-12	13	22			31	45
Ruston fine sandy loam, 8 to 12 percent slopes	IVe-15	9	19			25	40
Sandy alluvial land	IIIw-13					33	48
Savannah very fine sandy loam, 0 to 2 percent slopes	IIw-16	26	31	135	145	59	69
Scranton loamy fine sand, 0 to 2 percent slopes	IIIw-13	15	20			28	43
Scranton loamy fine sand, 2 to 5 percent slopes	IIIw-13	13	18			25	40
St. Lucie sand, 0 to 5 percent slopes	VIs-12						
St. Lucie-Leon-Muck complex	VIs-12						
Sunsweet fine sandy loam, 5 to 8 percent slopes, eroded	VIe-19						
Sunsweet fine sandy loam, 2 to 5 percent slopes, eroded	IVs-19	14	20			34	44
Sunsweet fine sandy loam, 8 to 17 percent slopes, eroded	VIIe-19						
Swamp	VIIw-11						
Tidal marsh	VIIw-11						
Tifton very fine sandy loam, 0 to 2 percent slopes	I-11	30	35	140	150	65	75
Tifton very fine sandy loam, 2 to 5 percent slopes	IIe-11	27	33	125	140	59	70
Tifton very fine sandy loam, 2 to 5 percent slopes, eroded	IIe-11	24	31	110	130	53	65
Tifton very fine sandy loam, 5 to 8 percent slopes	IIIe-11	22	30			47	60
Tifton very fine sandy loam, 5 to 8 percent slopes, eroded	IIIe-11	19	28			41	55
Wahee silt loam, 0 to 2 percent slopes	IIIw-12	13	19			33	43
Wahee silt loam, 2 to 5 percent slopes	IIIw-12	14	20			35	45
Wet clayey alluvial land	Vw-12						
Wet loamy alluvial land	Vw-12						

[1] Cow-acre-days expresses the carrying capacity of pasture as the number of days 1 acre will graze 1 animal unit without injury to the pasture. An animal unit is one cow, steer, or horse, five hogs, or seven sheep or goats.

[2] One crate contains 5 dozen ears of corn.

principal crops under two levels of management—Continued

Oats		Wheat		Cotton (lint)		Pasture		Watermelons		Pecans		Cabbage		Sweet corn	
A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
Bu.	*Bu.*	*Bu.*	*Bu.*	*Lb.*	*Lb.*	*Cow-acre-days* [1]	*Cow-acre-days* [1]	*Tons*	*Tons*	*Lb.*	*Lb.*	*Hampers*	*Hampers*	*Crates* [2]	*Crates* [2]
51	61	23	28	420	670	250	300	6	8	320	520	180	280	90	140
46	57	20	26	385	640	235	290	5	7	220	420	130	230	65	115
41	53	17	24	330	590	220	280								
36	49	14	22	275	540	190	260								
25	55	10	25			210	310								
55	65	25	30	410	610	260	310	5	7	340	540	200	300	100	150
50	61	22	28	375	600	245	300	4	6	240	440	150	250	75	125
45	57	19	26	320	530	230	290								
16	29	6	11	140	370	210	260								
42	53	17	23	355	560	225	280	4	6	200	400	110	210	55	105
47	57	20	25	390	590	240	290	5	7	300	500	160	260	80	130
37	49	13	21	300	510	210	270								
32	45	10	19	245	460	195	260								
10	24	6	12			100	250								
43	53	18	23	400	600	230	280	6	8	280	480	140	240	70	120
38	49	15	21	365	570	215	270	5	7	180	380	90	190	45	95
33	45	12	19	310	520	200	260								
28	41	9	17	255	470	185	250								
23	37	6	15	180	420	140	220								
						90	250								
						90	250								
0	29	0	11			100	260								
0	27					90	250								
0	25					80	240								
41	51	17	22	405	605	225	275	6	8	270	470	130	230	65	115
36	47	14	20	370	575	210	260	5	7	170	370	80	180	40	90
42	57	17	25	280	500	230	310								
40	51	16	22	360	565	220	275	5	7	190	390	100	200	50	100
45	55	19	24	395	595	235	285	6	8	290	490	150	250	75	125
35	47	13	20	305	515	205	265								
30	43	10	18	250	465	190	255								
25	39	7	16	195	415	175	245								
20	35	4	14			160	235								
						135	185								
49	59	22	27	410	610	260	310					190	290	95	145
26	38	9	15	140	370	130	210								
21	33	7	13	110	350	120	205								
						135	185								
27	36	12	17	230	430	155	205								
55	65	25	30	415	615	260	310	5	7	340	540	200	300	100	150
50	61	22	28	380	585	245	300	4	6	240	440	150	250	75	125
45	57	19	26	325	535	230	290								
40	53	16	24	270	485	215	280								
35	49	13	22	215	435	200	270								
26	35	11	16	245	460	170	240								
27	37	12	17	250	465	160	230								
						130	210								
						130	210								

Some kinds of trees that grow on these areas are white willow, water oak, overcup oak, swamp chestnut oak, Shumard oak, red oak, sweetgum, tupelo-gum, blackgum, cypress, willow, cottonwood, ash, and hickory. There is also a scattering of spruce pine, loblolly pine, and slash pine.

Woodland suitability groups

To help in planning the management of the soils in Baldwin County, the soils that have similar characteristics that affect their suitability for growing trees have been placed in woodland suitability groups (see table 7). Each group is made up of soils that have about the same site index and about the same species priority. For all of the soils of a group, plant competition, seedling mortality, equipment limitations, and the hazards of windthrow and erosion are about the same. All of these items are important to the owner of a tract of woodland and will help him in planning his management.

The site index is determined by measuring the height, at-

TABLE 7.—*Woodland suitability groups and*

Woodland suitability group and map symbol	Loblolly pine			Longleaf pine			Shortleaf pine		
	Site index [1]	Yearly rate of growth per acre [2]		Site index [1]	Yearly rate of growth per acre [2]		Site index [1]	Yearly rate of growth per acre [2]	
		Bd. ft. (Doyle) [3]	*Cords (rough)* [4]		*Bd. ft. (Doyle)* [3]	*Cords (rough)* [4]		*Bd. ft. (Doyle)* [3]	*Cords (rough)* [4]
Group 1. Deep, excessively drained, very friable loamy fine sands that are low in organic matter. (EuB, EuC, EuD, LaB, LaC, LaD, LaE)	70	310	1. 4	70	310	1. 4	70	310	1. 4
Group 2. Deep, excessively drained sands that have a thin layer of organic matter and are very low in moisture-holding capacity and in fertility. (LkB, SsB)	[5] 60	250	1. 1	[5] 50	200	. 9	[5] 50	200	. 9
Group 3. Deep, moderately well drained, very friable loamy fine sands that are low in organic matter and in fertility. (KlB, KlC)	[5] 80	400	1. 9	[5] 70	310	1. 4	70	310	1. 4
Group 4. Poorly drained and very poorly drained, dominantly sandy soils that are low in fertility, variable in organic matter, and have a high water table. (Gr, Lm, My, Ok, PmB, PmC, RaA, RaB, RaC, ScA, ScB)	90	520	2. 3	70	310	1. 4	[5] 70	310	1. 4
Group 5. Dominantly deep, well-drained soils that have a friable subsoil of sandy clay loam or clay loam. (BoB, BoB2, BoC, BoD, CaB, CgA, CgB, CgB2, CgC, CgC2, CgD, CgD2, FaA, FaB, FaB2, FaC, FaC2, GoA, GoB, GoC, GvA, GvB, GvB2, GvC2, KaA, KaB, MgA, MgB, MgB2, MgC2, MrA, MrB, MrB2, NoA, NoB, NoB2, NoC, OrA, OrB, OrB2, OrC, OrD2, RbA, RbB, RuA, RuB, RuB2, RuC, RuC2, RuD, TfA, TfB, TfB2, TfC, TfC2)	80	400	1. 9	70	310	1. 4	70	310	1. 4
Group 6. Somewhat poorly drained to moderately well drained soils that are moderately permeable in the upper part but have layers that restrict the movement of water and air in the lower part. (IzA, IzB, LyA, LyB, LyC, Rr)	90	520	2. 3	70	310	1. 4	[5] 70	310	1. 4
Group 7. Soils that are shallow over heavy clay or cemented sandy material and that have moderately good internal drainage and excessive surface drainage. (BwC, BwD, BwD2, BwF2, CuC, CuD, CuE2, CtB, CtC, CtD, CtE, SuB2, SuC2, SuD2)	80	400	1. 9	70	310	1. 4	70	310	1. 4
Group 8. Moderately well drained, moderately permeable, friable soils that have a low to moderate available moisture-holding capacity and a fragipan or layer of cemented material at a depth of 20 to 30 inches. (BtB, BtC, IrA, IrB, SbA)	80	400	1. 9	70	310	1. 4	[5] 70	310	1. 4
Group 9. Deep, moderately well drained, friable soils that are moderate in available moisture-holding capacity, are high in plant nutrients, and are on flood plains. (Iu, Lv)	90	520	2. 3	[5] 70	310	1. 4	[5] 70	310	1. 4
Group 10. Moderately deep, excessively drained to poorly drained, friable, alluvial soils that range from sand to silty clay in texture. (Bb, Mn, Sa, Wc, Wm)	90	520	2. 3	[5] 70	310	1. 4	[5] 70	310	1. 4

See footnotes at end of table.

tained at 50 years of age, of representative trees of the dominant species in a stand. For practical purposes, the site index is rounded off to the nearest 10-foot class.

Plant competition refers to the degree of competition that can be expected from undesirable plants that invade the planting site. The ratings used to indicate the degree of competition from other plants are *slight*, *moderate*, and *severe*. A rating of slight shows that no special problem is recognized and that invasion by undesirable plants will not impede natural regeneration and the growth of desirable plants. A rating of moderate means that plant competition develops but generally does not prevent an adequate stand from becoming established. A rating of severe means that plant competition prevents trees from restocking naturally and that special management is needed.

Seedling mortality refers to the expected degree of mortality or loss of natural seedlings as influenced by the kinds of soils or other factors in the environment. The terms used to indicate the degree of seedling mortality

factors affecting woodland management

Slash pine			Suitable species in order of priority	Plant competition	Seedling mortality	Equipment limitations	Windthrow hazard	Erosion hazard
Site index [1]	Yearly rate of growth per acre [2]							
	Bd. ft. (*Doyle*) [3]	*Cords* (*rough*) [4]						
80	400	1. 9	Loblolly pine; slash pine; longleaf pine.	Moderate	Moderate to severe.	Slight	Slight	Slight to moderate.
[5] 60	250	1. 1	Loblolly pine; slash pine; sand pine; longleaf pine; shortleaf pine.	Severe	Severe	Slight	Slight	Slight.
80	400	1. 9	Loblolly pine; slash pine; longleaf pine; sand pine; shortleaf pine.	Moderate	Moderate	Moderate	Slight	Slight.
90	520	2. 3	Loblolly pine; slash pine; spruce pine; yellow-poplar; redgum; tupelo-gum; white oak; red oak; cypress.	Severe	Slight	Severe	Moderate	Slight.
80	400	1. 9	Loblolly pine; slash pine; longleaf pine; shortleaf pine; yellow-poplar; white oak; red oak.	Moderate	Moderate	Slight	Slight	Slight to moderate.
90	520	2. 3	Loblolly pine; slash pine; longleaf pine; yellow-poplar; sweetgum; white oak; red oak; bay.	Moderate	Moderate	Moderate to severe.	Slight	Slight.
80	400	1. 9	Loblolly pine; slash pine; longleaf pine; shortleaf pine.	Slight	Moderate	Slight to moderate.	Slight to moderate.	Slight to moderate.
80	400	1. 9	Loblolly pine; slash pine longleaf pine; shortleaf pine; yellow-poplar; white oak; red oak.	Slight	Slight	Slight to severe.	Slight	Slight to moderate.
[5] 90	520	2. 3	Loblolly pine; slash pine; yellow-poplar; sweetgum; bay; white oak; red oak; cypress.	Moderate to severe.	Slight	Slight to severe.	Slight	Slight.
90	520	2. 3	Loblolly pine; slash pine; sweetgum; tupelo-gum; bay; cypress; white oak; red oak; cottonwood.	Severe	Slight	Severe	Slight to moderate.	Slight.

TABLE 7.—*Woodland suitability groups and*

Woodland suitability group and map symbol	Loblolly pine			Longleaf pine			Shortleaf pine		
	Site index [1]	Yearly rate of growth per acre [2]		Site index [1]	Yearly rate of growth per acre [2]		Site index [1]	Yearly rate of growth per acre [2]	
		Bd. ft. (Doyle) [3]	*Cords (rough)* [4]		*Bd. ft. (Doyle)* [3]	*Cords (rough)* [4]		*Bd. ft. (Doyle)* [3]	*Cords (rough)* [4]
Group 11. Poorly drained to excessively drained sands that have a fragipan of organic material at a depth of about 24 to 30 inches; the water table is generally high in these soils, and the St. Lucie-Leon-Muck complex sometimes has water ponded on the surface. (Ls, St)	[5] 70	310	1. 4	[5] 60	250	1. 1	[5] 60	250	1. 1
Group 12. Excessively drained sands and very poorly drained clays and silty clays; tidal marsh is flooded frequently by salt water and brackish water. (Co, Ma, Re, Td)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)
Group 13. Soils that range from very poorly drained Swamp and Muck, which are high in organic matter, to Gullied land and Made land, which are excessively drained and low in organic matter. (Gw, Hb, Sw)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)
Group 14. Somewhat poorly drained to moderately well drained soils that have a fine-textured, slowly permeable subsoil and are on terraces. (FsB, FwB, WaA, WaB)	90	520	2. 3	70	310	1. 4	70	310	1. 4

[1] The site index is the height, in feet, that a tree of a given species in an even-aged, well-managed stand and growing on a given soil will attain at 50 years of age. The figures are rounded to the nearest 10-foot site class.

[2] Estimated yields are based on 85 percent of potential production from a well-stocked stand that has had commercial thinning periodically and the crop trees harvested. The cutting cycle ranges from 5 to 10 years in length, according to the site.

[3] Average yearly rate of growth in board feet (Doyle rule) for an average stand 18 inches in diameter at breast height, age 40 to 72 years.

are *slight*, *moderate*, and *severe*. A rating of slight means that no special problem is recognized and that losses will not exceed 25 percent of the planted stock. Normally, satisfactory restocking will develop with the first planting. A rating of moderate shows that losses of between 25 and 50 percent of the seedlings can be expected. Generally, some replanting will be necessary to fill in openings. A rating of severe means that losses of more than 50 percent of the seedlings can be expected. The seedbed will require special preparation, and intensive replanting will generally be required to assure adequate restocking.

Equipment limitations refers to the characteristics of the soils and of topographic features that restrict the use of equipment commonly used in managing the woodlands or in harvesting the trees. A rating of *slight* indicates that equipment can be used during any time of the year; of *moderate*, that the use of standard equipment will be restricted for no more than 3 months of the year; and of *severe*, that equipment may damage the structure of the soil and injure roots, and that the use of standard equipment is restricted for periods longer than 3 months. Roads and trails will need intensive maintenance to remain serviceable.

The hazard of windthrow refers to windfirmness as reflected by the characteristics of the soils that control the development of roots. The information is important in determining species priority and in planting, thinning and harvesting of the trees. A rating of *slight* means that roots have developed normally and have penetrated deep into the soil; the tree will remain standing when it is exposed to normal winds. A rating of *moderate* means that roots cannot penetrate to a great depth in the soil, but that adequate stability can be expected, except during periods when the soils are excessively wet or the velocity of the wind is high. A rating of *severe* indicates that the soils have a high water table or a restrictive layer that prevents the normal

***Figure 16.*—Girdling undesirable hardwoods on an area of Lakeland loamy fine sand, 0 to 5 percent slopes, so that pines will have a better chance to grow.**

factors affecting woodland management—Continued

Slash pine			Suitable species in order of priority	Plant competition	Seedling mortality	Equipment limitations	Windthrow hazard	Erosion hazard
Site index [1]	Yearly rate of growth per acre [2]							
	Bd. ft. (Doyle) [3]	*Cords (rough)* [4]						
[5] 70	310	1. 4	Loblolly pine; slash pine; shortleaf pine.	Moderate	Slight to moderate.	Moderate to severe.	Moderate	Slight.
(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)
(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)
90	520	2. 3	Lobolly pine; slash pine; yellow-poplar; sweetgum.	Severe	Slight	Moderate	Moderate	Slight.

[4] Average yearly rate of growth in cords (rough cords) for an average stand 10 inches in diameter at breast height, age 25 to 36 years.

[5] Data extrapolated from measurements on soils that have similar characteristics or from measurements on soils located in counties other than Baldwin County.

[6] Variable.

development of roots. Trees can be expected to blow over when released on all sides or when the velocity of the wind is high. None of the soils in the county has a rating of severe.

The hazard of erosion refers to the likelihood of erosion when the soils are managed according to currently acceptable practices. For the soils in this county, a rating of *slight* or of *moderate* was given.

WOODLAND SUITABILITY GROUP 1

In this group are deep, excessively drained loamy fine sands. These soils are very friable, and they have a deep root zones. Permeability is rapid, and the moisture-holding capacity is low. These soils are low in plant nutrients and in content of organic matter. They are susceptible to leaching and are strongly acid. The following soils are in this group:

- Eustis loamy fine sand, 0 to 5 percent slopes.
- Eustis loamy fine sand, 5 to 8 percent slopes.
- Eustis loamy fine sand, 8 to 12 percent slopes.
- Lakeland loamy fine sand, 0 to 5 percent slopes.
- Lakeland loamy fine sand, 5 to 8 percent slopes.
- Lakeland loamy fine sand, 8 to 12 percent slopes.
- Lakeland loamy fine sand, 12 to 17 percent slopes.

Plant competition is moderate on these soils. There is little moisture in the soils, except after rains, and the presence of scrub hardwoods also prevents a stand of pines from becoming established. If a stand of pines is to be established, the areas need to be burned over and the hardwoods controlled (fig. 16).

Seedling mortality is moderate to severe because of the excessive drainage and drying of the soils. If a stand of pines is to be established, the site needs to be prepared carefully to conserve moisture and to reduce the competition from other plants. Also, replanting (fig. 17) may be necessary to obtain a well-stocked stand.

Equipment limitations are slight on these soils. Conventional equipment can be used throughout the year.

The hazard of windthrow is slight because the roots of trees develop well and penetrate deeply.

The hazard of erosion is slight to moderate. Because the soils are loose, however, firebreaks, trails, and roads should be constructed across the slope to prevent gullies from forming. In places there is likely to be some wind erosion in large, open fields.

Figure 17.—A planting of 3-year-old slash pine on Eustis loamy fine sand, 0 to 5 percent slopes, that has been cleared. The large oak trees have been girdled.

WOODLAND SUITABILITY GROUP 2

In this group are deep, excessively drained sands. These soils are loose and have very rapid permeability. They are very low in natural fertility and in moisture-holding capacity. In places the Lakewood soil in this group has a thin layer of organic matter at variable depths. The following soils are in this group:

Lakewood sand, 0 to 5 percent slopes.
St. Lucie sand, 0 to 5 percent slopes.

Plant competition is severe on these soils because of the excessive drainage and very low fertility. Unwanted plants will keep a good stand of pines from becoming established. Burning over the areas and controlling the brush will be necessary before a fully stocked stand can be established.

Seedling mortality is severe on these soils. The site needs to be prepared so that moisture will be conserved. Also, to obtain a satisfactory stand, roots of the seedlings need to be placed deep in the soil where they will be closer to a dependable source of moisture. Replanting may be necessary.

Equipment limitations are slight, and most kinds of conventional equipment can be used throughout the year. Because of the sandy texture of these soils, however, the use of some types of equipment may be limited.

The hazard of windthrow is slight on these soils because roots can penetrate deeply.

The hazard of erosion is slight because most areas of these soils are nearly level or very gently sloping. Nevertheless, roads and firebreaks ought to be constructed across the slope. There is a hazard of wind erosion in large, open fields where the cover of plants is inadequate.

WOODLAND SUITABILITY GROUP 3

In this group are deep, moderately well drained loamy fine sands that are very friable. These soils are very low in plant nutrients and in content of organic matter. Their moisture-holding capacity is low, but the water table is higher than that in the soils of group 1. The following soils are in this suitability group:

Klej loamy fine sand, 0 to 5 percent slopes.
Klej loamy fine sand, 5 to 8 percent slopes.

Plant competition is moderate on these soils. In some areas hardwoods, cull trees, and brush are dense enough to prevent a fully stocked stand of pines from becoming established. The undesirable plants will also retard the growth of the pines. Burning over the areas, draining the soils, and controlling the unwanted trees is necessary to reduce the competition.

Seedling mortality is moderate because the moisture content of these soils is favorable for the growth of seedlings. In places, however, the seedlings may be damaged by excess moisture. Some planting is generally necessary to assure a well-stocked stand.

Equipment limitations are slight on these soils. Nevertheless, after a heavy rain the soils are excessively wet and equipment cannot be used.

There is little or no hazard of windthrow on these soils.

The hazard of erosion is slight because the soils are nearly level to gently sloping.

WOODLAND SUITABILITY GROUP 4

The soils in this group are poorly drained or very poorly drained and have a high water table. Water stands on or near the surface most of the year. These soils are low in plant nutrients and vary in content of organic matter. Most of them are sandy, but in places the Leaf soil and the Grady soils have a texture of clay or sandy clay. The following soils are in this group:

Grady soils.
Leaf silt loam.
Myatt very fine sandy loam.
Okenee soils.
Plummer loamy sand, 0 to 5 percent slopes.
Plummer loamy sand, 5 to 12 percent slopes.
Rains fine sandy loam, 0 to 2 percent slopes.
Rains fine sandy loam, 2 to 5 percent slopes.
Rains fine sandy loam, 5 to 8 percent slopes.
Scranton loamy fine sand, 0 to 2 percent slopes.
Scranton loamy fine sand, 2 to 5 percent slopes.

Plant competition is severe on the soils of this group. The large amount of moisture in the soils increases the growth of unwanted plants in openings and under partial shade. To reduce competition from unwanted plants, it is necessary to use chemicals and other methods to control the hardwoods, including girdling, clearing, and disking.

Seedling mortality is slight on these soils. If competition from undesirable plants is removed, the large amount of moisture in the soils is ideal for seedlings to grow and develop properly.

Equipment limitations are severe on these soils because of the high water table. Logging must be done in summer and early in fall when the soils are dry. The logging equipment damages the roots and impairs the soil structure if the soils are not dry and firm.

The hazard of windthrow is moderate on these soils. Because of the high water table, the roots of trees do not extend deep in the soil and the trees blow over fairly easily.

The hazard of erosion is slight because the soils are mostly nearly level or very gently sloping.

WOODLAND SUITABILITY GROUP 5

In this group are dominantly deep, well-drained soils that have a friable subsoil of sandy clay loam or clay loam. There are no restricting layers in the normal root zone. The capacity for storing available moisture is variable. The following soils are in this group:

Bowie fine sandy loam, 2 to 5 percent slopes.
Bowie fine sandy loam, 2 to 5 percent slopes, eroded.
Bowie fine sandy loam, 5 to 8 percent slopes.
Bowie fine sandy loam, 8 to 12 percent slopes.
Cahaba fine sandy loam, 2 to 5 percent slopes.
Carnegie very fine sandy loam, 0 to 2 percent slopes.
Carnegie very fine sandy loam, 2 to 5 percent slopes.
Carnegie very fine sandy loam, 2 to 5 percent slopes, eroded.
Carnegie very fine sandy loam, 5 to 8 percent slopes.
Carnegie very fine sandy loam, 5 to 8 percent slopes, eroded.
Carnegie very fine sandy loam, 8 to 12 percent slopes.
Carnegie very fine sandy loam, 8 to 12 percent slopes, eroded.
Faceville fine sandy loam, 0 to 2 percent slopes.
Faceville fine sandy loam, 2 to 5 percent slopes.
Faceville fine sandy loam, 2 to 5 percent slopes, eroded.
Faceville fine sandy loam, 5 to 8 percent slopes.
Faceville fine sandy loam, 5 to 8 percent slopes, eroded.
Goldsboro fine sandy loam, 0 to 2 percent slopes.
Goldsboro fine sandy loam, 2 to 5 percent slopes.
Goldsboro fine sandy loam, 5 to 8 percent slopes.
Greenville loam, 0 to 2 percent slopes.
Greenville loam, 2 to 5 percent slopes.

Greenville loam, 2 to 5 percent slopes, eroded.
Greenville loam, 5 to 8 percent slopes, eroded.
Kalmia fine sandy loam, 0 to 2 percent slopes.
Kalmia fine sandy loam, 2 to 5 percent slopes.
Magnolia fine sandy loam, 0 to 2 percent slopes.
Magnolia fine sandy loam, 2 to 5 percent slopes.
Magnolia fine sandy loam, 2 to 5 percent slopes, eroded.
Magnolia fine sandy loam, 5 to 8 percent slopes, eroded.
Marlboro very fine sandy loam, 0 to 2 percent slopes.
Marlboro very fine sandy loam, 2 to 5 percent slopes.
Marlboro very fine sandy loam, 2 to 5 percent slopes, eroded.
Norfolk fine sandy loam, 0 to 2 percent slopes.
Norfolk fine sandy loam, 2 to 5 percent slopes.
Norfolk fine sandy loam, 2 to 5 percent slopes, eroded.
Norfolk fine sandy loam, 5 to 8 percent slopes.
Orangeburg fine sandy loam, 0 to 2 percent slopes.
Orangeburg fine sandy loam, 2 to 5 percent slopes.
Orangeburg fine sandy loam, 2 to 5 percent slopes, eroded.
Orangeburg fine sandy loam, 5 to 8 percent slopes.
Orangeburg fine sandy loam, 8 to 12 percent slopes, eroded.
Red Bay fine sandy loam, 0 to 2 percent slopes.
Red Bay fine sandy loam, 2 to 5 percent slopes.
Ruston fine sandy loam, 0 to 2 percent slopes.
Ruston fine sandy loam, 2 to 5 percent slopes.
Ruston fine sandy loam, 2 to 5 percent slopes, eroded.
Ruston fine sandy loam, 5 to 8 percent slopes.
Ruston fine sandy loam, 5 to 8 percent slopes, eroded.
Ruston fine sandy loam, 8 to 12 percent slopes.
Tifton very fine sandy loam, 0 to 2 percent slopes.
Tifton very fine sandy loam, 2 to 5 percent slopes.
Tifton very fine sandy loam, 2 to 5 percent slopes, eroded.
Tifton very fine sandy loam, 5 to 8 percent slopes.
Tifton very fine sandy loam, 5 to 8 percent slopes, eroded.

Plant competition is moderate on these soils. Generally, a stand of desirable trees will become established, but in many places the competition from undesirable plants is strong enough to slow the development of the trees. Methods to control cull trees and careful preparation of the site, including clearing, disking, and controlled burning, will help in establishing a stand of pines or other desirable trees (fig. 18) by natural seeding.

Seedling mortality is moderate; a desirable stand will develop naturally, especially if competition from undesirable plants has been eliminated or controlled. A good stand can be obtained without difficulty if the seedlings are planted properly.

***Figure 18.*—Pines growing on Marlboro very fine sandy loam, 0 to 2 percent slopes. The trees are used to produce turpentine.**

Equipment limitations are slight, but equipment cannot be used for short periods after a heavy rain.

The hazard of windthrow is slight on these soils because the roots of trees penetrate deeply.

The hazard of erosion is slight to moderate. Roads, skidtrails, and firebreaks should be located properly, however, so that gullies will not form.

WOODLAND SUITABILITY GROUP 6

The soils in this group are somewhat poorly drained to moderately well drained. The upper part of their solum is moderately permeable, but the lower part contains layers that restrict the movement of water and the penetration of roots. These soils are low in fertility and low to medium in content of organic matter. The following soils are in this group:

Izagora very fine sandy loam, 0 to 2 percent slopes.
Izagora very fine sandy loam, 2 to 5 percent slopes.
Lynchburg fine sandy loam, 0 to 2 percent slopes.
Lynchburg fine sandy loam, 2 to 5 percent slopes.
Lynchburg fine sandy loam, 5 to 8 percent slopes.
Robertsdale loam.

Plant competition is moderate on these soils, but a satisfactory stand of desired trees can generally be obtained. Because moisture is favorable for the growth of plants, however, plant competition will develop, and sometimes unwanted trees and shrubs will need to be controlled to establish a desirable stand.

Seedling mortality is moderate. Except during droughts, a good stand of desirable trees can generally be obtained by natural seeding and the trees will grow well. Plantations of pine seedlings should develop a good, well-stocked stand without interplanting or replanting.

Equipment limitations are severe during rainy seasons and moderate at other times. The soils may be too wet for equipment to be used for as long as 2 to 3 months.

The hazard of windthrow is slight. The structure of these soils and the supply of moisture favor development of a good root system. Roots penetrate to a fairly great depth before they reach a dense or compact layer.

The hazard of erosion is slight on these soils, but roads, trails, and firebreaks should be constructed across the slope to prevent gullies from forming.

WOODLAND SUITABILITY GROUP 7

In this group are soils that are shallow over various kinds of parent material. The soils have moderately good internal drainage, but surface drainage is excessive. The texture of the subsoil is variable, but it is generally heavy clay or cemented, sandy material. The rate of infiltration and permeability are slow or very slow, and the moisture-holding capacity is low. These soils are low in natural plant nutrients. The following soils are in this group:

Bowie, Lakeland, and Cuthbert soils, 5 to 8 percent slopes.
Bowie, Lakeland, and Cuthbert soils, 8 to 12 percent slopes.
Bowie, Lakeland, and Cuthbert soils, 8 to 12 percent slopes, eroded.
Bowie, Lakeland, and Cuthbert soils, 12 to 25 percent slopes, eroded.
Cuthbert fine sandy loam, 2 to 5 percent slopes.

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Cuthbert fine sandy loam, 5 to 8 percent slopes.
Cuthbert fine sandy loam, 8 to 12 percent slopes.
Cuthbert fine sandy loam, 12 to 17 percent slopes.
Cuthbert, Bowie, and Sunsweet soils, 5 to 8 percent slopes.
Cuthbert, Bowie, and Sunsweet soils, 8 to 12 percent slopes.
Cuthbert, Bowie, and Sunsweet soils, 12 to 17 percent slopes, eroded.
Sunsweet fine sandy loam, 2 to 5 percent slopes, eroded.
Sunsweet fine sandy loam, 5 to 8 percent slopes, eroded.
Sunsweet fine sandy loam, 8 to 17 percent slopes, eroded.

Plant competition is slight on these soils; a satisfactory stand of desirable trees will generally develop without the use of special measures. In some areas where seepage occurs, however, or in areas where fertility is high, hardwoods need to be controlled. Clearing, disking, and burning over the areas will help establish and release a new stand of desirable trees.

Seedling mortality is moderate on these soils. Generally, the areas seed naturally, and the seedlings develop a good stand. Droughts will sometimes make it necessary to plant seedlings because the moisture-holding capacity of these soils is low.

Equipment limitations are slight to moderate on these soils. The use of equipment may be limited in eroded areas and after a heavy rain.

The hazard of windthrow is slight to moderate, but some windthrow is likely if the shallow soils of this group are exposed.

The hazard of erosion is slight to moderate. If roads, skidtrails, and firebreaks are not run across the slope, gullies may form.

WOODLAND SUITABILITY GROUP 8

The soils in this group are moderately deep and moderately well drained. They have a fragipan or cemented layer at a depth of about 20 to 30 inches. Above this layer, the soils are friable and moderately permeable; they have a low to moderate capacity for storing available moisture. The fragipan restricts the movement of water, and the soil material above the fragipan becomes saturated during rainy periods. The following soils are in this suitability group:

Bowie fine sandy loam, thin solum, 2 to 5 percent slopes.
Bowie fine sandy loam, thin solum, 5 to 8 percent slopes.
Irvington loam, 0 to 2 percent slopes.
Irvington loam, 2 to 5 percent slopes.
Savannah very fine sandy loam, 0 to 2 percent slopes.

Plant competition is slight on these soils and generally will not prevent a fully stocked stand of desirable trees from becoming established. To control competition, however, some areas need to be burned over, cleared, and disked, and the cull trees need to be controlled before the new stand is started.

Seedling mortality is slight because a stand will generally develop from natural seeding. A fully stocked stand can be obtained without difficulty if the seedlings are planted properly.

Equipment limitations are severe only after a long period of rainy weather. At other times, equipment can be used on these soils and limitations are slight.

The hazard of windthrow is slight on these soils. In places the fragipan may hinder the development of roots, but evidence of windthrow has seldom been observed on these soils.

The hazard of erosion is slight to moderate. Roads, skidtrails, and firebreaks should be located properly to prevent gullies from forming.

WOODLAND SUITABILITY GROUP 9

In this group are deep, moderately well drained, friable soils on flood plains. The soils are flooded frequently. Permeability is slow, and the capacity for storing available moisture is moderate. These soils are high in natural plant nutrients and medium in content of organic matter. The following soils are in this group:

Iuka silt loam.
Local alluvial land.

Plant competition is moderate to severe because of the fairly large amount of moisture in the soils and the high fertility. To attain a fully stocked stand of desirable trees, it is generally necessary to use control measures, such as injecting, girdling, clearing, and spraying with chemicals, to eliminate undesirable plants.

Seedling mortality is slight on these soils. After competition from other plants has been removed, the seedlings will develop rapidly. A fully stocked stand can be obtained by planting. Planting should generally be relied upon to establish a stand rather than natural reseeding. This is because the rapid recovery of plant competition does not allow for the delay that sometimes occurs when depending on natural reseeding.

Equipment limitations are severe when the soils are either flooded or saturated with moisture. This is 3 to 4 months of each year. During the rest of the year, limitations are slight.

The hazard of windthrow is slight because the trees develop a good root system on these soils.

The hazard of erosion is slight because these soils are nearly level. Nevertheless, some erosion can be expected because of flooding.

No longleaf pines or shortleaf pines were observed on these soils. The site class was estimated by comparing with similar soils.

WOODLAND SUITABILITY GROUP 10

In this group are moderately deep, friable, alluvial soils that are poorly drained to excessively drained. The soils are on flood plains and in slight depressions on uplands formed from local alluvium. The texture of these soils ranges from sand to silty clay. Water stands on some of the areas for a long time. The supply of plant nutrients is variable. The following soils are in this group:

Bibb and Mantachie soils, local alluvium.
Mantachie silt loam.
Sandy alluvial land.
Wet clayey alluvial land.
Wet loamy alluvial land.

Plant competition is severe because moisture and fertility are favorable for the growth of plants. To obtain a stand of desirable trees, control measures, such as girdling, injecting, clearing, disking, and spraying with chemicals, are necessary.

Seedling mortality is slight on these soils. If competition is eliminated, seedlings develop well. If hardwoods are to be managed, a stand can usually be obtained by natural seeding. If pines or cottonwoods are desired, they must be planted because competition develops rapidly on these soils.

Equipment limitations are severe. The soils are flooded or wet during a large part of the year, and they can be logged only during dry seasons, or for approximately 6 months each year. There will be some damage to roots if heavy equipment is used during wet seasons.

The hazard of windthrow is slight to moderate on these soils. In some areas the trees will have shallow roots because of the high water table, but excessive windthrow is not likely.

The hazard of erosion is slight because the soils are nearly level.

Longleaf pine and shortleaf pine generally do not grow on these soils. Cottonwood can be planted only on the better drained, elevated areas.

WOODLAND SUITABILITY GROUP 11

In this group are poorly drained to excessively drained, sandy soils that are strongly acid to extremely acid. These soils are low in natural fertility and variable in content of organic matter. Their capacity for storing available moisture is low, the rate of infiltration is rapid, and runoff is slow. Leon sand is poorly drained. It has a dense layer, cemented with organic matter, at a depth of about 24 to 30 inches. This layer restricts the movement of water through the profile. Generally, there is a high water table. The following soils are in this group:

Leon sand.
St. Lucie-Leon-Muck complex.

Plant competition is moderate on these soils. Hardwood cull trees and shrubs cause pines to grow slowly, and they sometimes prevent a stand of pines from becoming established. If a desirable stand is to be established, the areas need to be burned over and the hardwoods need to be controlled.

Seedling mortality is slight or moderate on these soils. It becomes lower if plant competition is controlled or eliminated.

Equipment limitations are severe 3 to 4 months of each year during wet periods. During the rest of the year, limitations are moderate.

The hazard of windthrow is moderate. The pan, or dense layer, and the high water table hinder the development of roots.

The hazard of erosion is slight on these soils.

WOODLAND SUITABILITY GROUP 12

In this group are soils that support little or no woodland growth. Except for Tidal marsh, these soils have only a sparse amount of vegetation of any kind. The following soils are in this group:

Coastal beaches.
Made land.
Riverwash.
Tidal marsh.

Coastal beaches, Made land, and Riverwash are unproductive, excessively drained sands. Tidal marsh is poorly drained and has a texture that ranges from that of sandy material to heavy clay or silty clay. This soil is not suited to trees, but it has a dense cover of marsh cane and marsh grass.

WOODLAND SUITABILITY GROUP 13

The following soils are in this suitability group:

Gullied land.
Hyde and Bayboro soils and Muck.
Swamp.

Swamp and Hyde and Bayboro soils and Muck are deep and very poorly drained. Water stands on the surface most of the time. These soils are high in content of organic matter. They are probably best suited to cypress, tupelo-gum, juniper, and slash pine. Competition from other plants, seedling mortality, and limitations to the use of equipment are severe on these soils.

Gullied land has a variable texture ranging from deep sand to clay. Pines are the main kind of tree grown on Gullied land. Competition from other plants, seedling mortality, and limitations to the use of equipment are variable on these soils. Also variable are the hazard of windthrow and the hazard of erosion.

WOODLAND SUITABILITY GROUP 14

In this group are moderately well drained to somewhat poorly drained, nearly level, fine-textured soils on terraces along streams. These soils have a thin surface layer and a fine-textured subsoil through which water moves slowly or very slowly. They have a slow or very slow rate of infiltration and a low to moderate water-holding capacity. The following soils are in this group:

Flint silt loam, 2 to 5 percent slopes.
Flint, Wahee, and Leaf silt loams, 0 to 5 percent slopes.
Wahee silt loam, 0 to 2 percent slopes.
Wahee silt loam, 2 to 5 percent slopes.

Plant competition is severe on these soils. Pines and hardwoods grow well because of favorable moisture. If pines are the desired trees, intensive methods to control hardwoods will be needed to keep vines and sprouts from competing with the pine seedlings. These include spraying with a herbicidal chemical.

Seedling mortality is slight on these soils if plant competition is controlled. Planting is generally not needed where the site has been prepared to remove competition and where seed trees are present. Where desirable seed trees are not already present, planting should be done as soon as practicable.

Equipment limitations are moderate. The soils in this group puddle and pack easily during wet weather, and there are short periods when the use of harvesting equipment is restricted.

The hazard of windthrow is moderate because the surface layer is shallow. The slowly permeable subsoil also restricts the development of roots to some extent.

The hazard of erosion is slight because these soils are nearly level.

Range Management [5]

The ranges in Baldwin County are mainly of two kinds. These are woodlands used for range and marshlands used for range.

The woodlands used for range consist primarily of areas used to grow timber but that support native grasses and other plants. The native plants provide forage for livestock and game animals. The stands of timber and of forage plants can be improved mainly by grazing the areas correctly and by using improved practices in managing the timber. The woodlands have not been used extensively for range, but there is a large acreage of woodlands where the soils respond well to management and are

[5] By LELAND H. BURGESS, soil scientist.

suitable for range. The kinds and amounts of vegetation on the range will determine the number of cattle that can be carried profitably.

The marshlands used for range consist of both fresh-water and salt-water marshes along the coast. The areas generally support native grasses and other forage plants. They are not suitable for cultivation, and it would not pay to add fertilizer to them. The forage is restored and improved mainly through correct grazing practices and good management. No trees grow on the marshes.

Principles of range management

On rangeland, high yields of forage and the conservation of soil, water, and plants are obtained mainly by improving the native vegetation. To improve the vegetation, the grazing needs to be managed to encourage and to increase the best native forage plants. The development of leaves, the growth of roots, the production of seeds, the regrowth of forage, and the storage of food in the roots are essential stages in the development and growth of range plants. Grazing must allow for these natural processes of growth if the maximum yields of forage are to be obtained.

Livestock graze selectively, seeking out the more palatable and nutritious plants. If grazing is not carefully regulated, the more palatable plants will eventually be eliminated and less desirable plants will increase. If grazing pressure is continued, even the second-choice plants will be thinned out or eliminated and undesirable weeds will take their place.

If only half the yearly volume of grass produced is grazed, damage which occurs to the desirable plants is minimized and the range will improve. The forage left on the ground does these things:

1. Serves as a mulch that encourages the rapid intake of water; the more water stored in the soil, the better the growth of grass for grazing.
2. Allows roots to reach moisture that is deep in the soil; overgrazed grass cannot reach deep moisture, because not enough green shoots are left to provide the food needed for the good growth of roots.
3. Protects the soil from erosion by wind and water.
4. Allows the better grasses to crowd out the weeds. As a result, range in a low state of productivity will improve.
5. Enables plants to store food for quick and vigorous growth after droughts and in spring.
6. Provides a greater reserve of feed for the dry spells.

Sound range management requires that grazing use be adjusted from season to season according to the production of forage. The range operator should provide reserve pastures or other feed for use during droughts and at other times when the production of forage is low. This permits moderate grazing of forage at all times.

In addition to providing reserves of forage and feed, the range operator needs to maintain part of his herd as readily salable stock, such as stocker steers. Such flexibility allows him to balance his livestock with forage production without sacrificing breeding animals.

On woodland range the goals and practices of grazing management must be compatible with the production of timber. The volume of forage will decrease as the density of a stand of timber increases. On well-managed woodland areas in pines, the control of undesirable woody plants, proper thinning, and harvest cutting encourage the highest production of forage consistent with the production of timber. Managed grazing of pine woodlands, in turn, reduces the hazard of fire and contributes to the control of undesirable hardwoods. It also helps pines to reproduce naturally by reducing the competition from forage plants and by permitting the pine seeds to come in contact with the mineral soil.

Range sites and range condition

To make use of the best practices and to improve his grasslands, the range operator needs to know the range plants and the combinations in which they grow. He should be able to read the signs that show him whether his range is getting better or worse. Important changes in the kinds of grasses often take place gradually, and they can be overlooked by an operator who is not acquainted with his range plants and soils.

Different kinds of soils produce different kinds and amounts of grass. To manage the range properly, the operator should know the different kinds of soils in his holdings and the plants each kind is capable of growing. He is then able to manage the range to favor the best forage plants on each kind of soil.

Range sites are kinds of rangeland that differ from each other in their ability to produce a significantly different kind or amount of climax, or original, vegetation. A significant difference means one large enough to require different grazing use or management. If two areas of rangeland in climax condition have a distinctly different plant composition, they make up two different range sites. Depending on the kind of plants growing on the two sites, it is probable that a different season of use, or rate of stocking, or both, will be needed. Bottom lands surrounded by drier hills are common examples of two different range sites.

Climax vegetation is the combination of plants that grew originally on a given site and reproduces itself so long as the environment does not change. The most productive combination of forage plants on rangelands is generally the climax type of vegetation. The climax vegetation of two range sites may be similar, but the yield of forage may be significantly different. The site where the most forage is produced will support a heavier rate of stocking. If two areas have the same kind of soils and climate, the differences in the kind and amount of forage are caused mainly by variations in the available moisture-holding capacity.

When a site is in climax or near climax condition, it may be identified by the kind of vegetation alone. If the climax vegetation is no longer growing on the site, permanent and mappable features of the site must be used as the identifying criteria. Normally, these are topography and kinds of soils. In general, the more important soil characteristics that affect the growth of the plants on native rangelands are texture, depth, and water supply. Only those factors that are consistently associated with the climax plant cover for the site should be used.

Plant succession refers to the progressive development of the vegetation toward its climax.

Decreasers are very palatable climax plants that are eliminated rather quickly under heavy grazing. *Increasers* are plants that increase for a while under heavy

grazing but finally go out under continual heavy use. *Invaders* are plants of little value for forage that are not present in the natural stand. They enter and invade areas under continuous heavy grazing, burning, or other poor management.

Timber canopy refers to the compactness of the crown cover of the woodland. It depends upon the distance between trees and the compactness of the individual crowns of trees.

Safe stocking rate is the number of animal units that can be grazed on a given range site and that will allow a good stand and the growth of desirable plants to be maintained.

Range condition is the present state of vegetation in relation to the climax condition for the site. A range in excellent condition has present 76 to 100 percent of the climax vegetation; one in good condition, 51 to 75 percent; one in fair condition, 26 to 50 percent; and one in poor condition, less than 26 percent.

Descriptions of range sites

The soils of Baldwin County have been grouped in the range sites described in the following pages. The description of each range site gives the important characteristics of the soils, the principal grasses growing on each, and other information about how to use and manage the range.

COASTAL PLAIN FLATWOODS

This site consists of soils on terraces of the Coastal Plain. The soils are in areas of flatwoods, and they formed in thick beds of unconsolidated sand, sandy loam, sandy clay, and clay. They are nearly level to sloping and are at an elevation of about 15 to 50 feet. The texture of the surface layer is mainly loam to loamy sand, and the texture of the subsoil ranges from loamy sand to sandy clay. In some places the underlying material is stratified, and in other places it consists of a thin layer of sand and clay. Soils of the following series are in this range site:

Cahaba.	Lynchburg.
Flint.	Myatt.
Goldsboro.	Okenee.
Irvington.	Plummer.
Izagora.	Rains.
Kalmia.	Robertsdale.
Klej.	Scranton.
Leaf.	Wahee.
Leon.	

Most of the soils of this range site are deep. Some of them, however, are only moderately deep over a layer that restricts the movement of water and the penetration of roots. The soils are poorly drained to moderately well drained and vary in infiltation and permeability. Some have a high water table or water is ponded on the surface most of the time.

The average annual precipitation for this site is about 65 inches. The rainfall is generally well distributed throughout 9 months of the year. May, October, and November are the driest months. In many years there are also periods during June when rainfall is low. The optimum growing season for the native plants lasts through April and May, but the plants grow to some extent until September. The frost-free growing season is about 270 days.

In general, range condition is good. Decreasers make up about 70 percent of the native vegetation on this range site. The principal kind of decreaser is pinehill bluestem, but the decreasers also include switchgrass and maidencane. Increasers, mainly low panicum, slender bluestem, cutover muhly, three-awn, sedges, and rushes, make up about 30 percent of the ground cover.

COASTAL PLAIN HILLS

This site consists of soils on uplands and along stream terraces of the Coastal Plain. The soils developed in deposits of sand, sandy clay, and clay. They have slopes of as much as 17 percent and are at an elevation of about 100 to 300 feet above sea level. In these soils the texture of the surface layer is mainly sandy loam, fine sandy loam, silt loam, and loam. Some of the soils are underlain by a subsoil of heavy clay, and some have a fragipan at a depth of 20 to 30 inches. In places there are gravelly areas. The following land type and soils of the following series are in this range site:

Bowie.	Norfolk.
Carnegie.	Orangeburg.
Cuthbert.	Red Bay.
Faceville.	Ruston.
Greenville.	Savannah.
Gullied land.	Sunsweet.
Magnolia.	Tifton.
Marlboro.	

The soils of this site are somewhat poorly drained to well drained. They absorb water at a slow to medium rate, and permeability is moderate to very slow. The available moisture-holding capacity is generally moderate to low. Some of these soils erode readily if they are not protected by vegetation.

The average annual precipitation for this site is about 65 inches. The rainfall is well distributed throughout 9 months of the year. May, October, and November are the months that have the lowest rainfall. The optimum growing season for the native plants on this site is April and part of May. The frost-free growing season ranges from 250 to 265 days.

Range condition, in general, is excellent. Decreasers make up about 80 percent of the native vegetation. They are mainly little bluestem, pinehill bluestem, and switchgrass, but deerstongue grows in some places. Increasers, mainly slender bluestem, grassleaf, golden-aster, low panicum, beaked panicum, cutover muhly, and three-awn, make up about 17 percent of the ground cover, and invading weeds make up the rest.

The overstory consists partly of longleaf, shortleaf, loblolly, and slash pines and partly of southern red, post, white, and water oaks. Blackgum, sweetgum, hickory, persimmon, and sweetbay also grow on the site. The understory consists mainly of huckleberry, yaupon, gallberry, waxmyrtle, and laurel.

COASTAL PLAIN SANDS

This site consists of soils that are nearly level or very gently sloping to moderately steep. Most of the soils are at an elevation of about 50 to 300 feet. They formed in thick beds of unconsolidated sand of the Coastal Plain. The following land types and soils of the following series are in this site:

Coastal beaches.	Lakewood.
Eustis.	Riverwash.
Lakeland.	St. Lucie.

The soils of this site are mainly deep, excessively drained loamy sands and sands. They have a rapid or very rapid rate of infiltration and of permeability. These soils are droughty and are low or very low in fertility.

The average annual precipitation for this site is about 65 inches. The rainfall is fairly well distributed throughout 9 months of the year; May, October, and November are the driest months. The optimum growing season for the native plants on this site lasts from March to May, but the plants grow to some extent until August. The frost-free growing season is about 270 days. The date of the last killing frost in spring is around March 10; that of the first in fall is November 10.

Generally, range condition is good to excellent. Decreasers make up about 76 percent of the native vegetation on this range site. Little bluestem is the principal kind of decreaser, but pinehill bluestem and tickclover are also important. Increasers make up about 23 percent of the native vegetation. They are mainly slender bluestem, grassleaf, golden-aster, low panicum, and three-awn. Invading weeds make up the rest of the ground cover.

The overstory consists mainly of longleaf, shortleaf, and loblolly pines and of turkey, blackjack, bluejack, post, laurel, and southern red oaks. The understory consists largely of huckleberry and some palmetto.

COASTAL PLAIN BOTTOM LANDS (CANEBREAKS-HARDWOODS)

This site consists of alluvial soils on first bottoms subject to periodic or seasonal overflow from streams. The soils are on bottoms adjacent to streams on the Coastal Plain. They formed in sediments washed mainly from soil materials of the Coastal Plain. The soils are nearly level to gently sloping, and they are at an elevation of about 5 to 50 feet above sea level. They have a texture of silt loam, fine sandy loam, and silty clay loam. The following land types and soils of the following series are in this site:

Bibb.	Sandy alluvial land.
Iuka.	Wet clayey alluvial land.
Local alluvial land.	Wet loamy alluvial land.
Mantachie.	

The soils of this site are deep and are moderately well drained to poorly drained. Surface runoff is slow, and permeability is moderate to slow. The seasonally high water table frequently slows the internal movement of water.

The average precipitation on this site is about 65 inches per year. Rainfall is well distributed, and the soils receive extra water from the uplands.

A number of different kinds of hardwoods grow on the soils. Switch cane is the most important forage plant. Canebreaks on the bottom lands furnish good to excellent range in winter and spring. Bottom lands that are used to produce hardwood timber should not be grazed.

SWAMPS

This site consists of soil material that was washed down from the uplands. Part of it was deposited along the lower lying areas of flood plains along streams. Some of it was deposited in old lagoons, bayous, and other depressions in areas of the Coastal flatwoods. The areas of Swamp in this site occur along major drainageways and are nearly level or very gently sloping.

The texture of the material deposited on the flood plains ranges from sandy loam or silt loam to silty clay. In places there is a cover of peat or muck that is 2 to 3 feet thick. In depressions in the flatwoods, the texture in the upper part of the soil material is generally sandy loam or silt loam. That in the lower part is silty clay or clay. Nearly all of the acreage in this site is mapped as Swamp, but the following soils are in this site:

Grady soils.
Hyde and Bayboro soils and Muck.
Swamp.

The soils of this site are poorly drained or very poorly drained. Because of their topography and elevation, water stands on the surface a large part of the year.

On this range site, precipitation ranges from 50 to 75 inches annually, but it is usually about 65 inches. Rainfall is well distributed, and the soils receive extra water from the uplands.

The climax vegetation on the areas of Swamp is a dense forest of hardwoods. The only forage consists of sprouts, buds, and a few grasses that tolerate shade.

Among the kinds of trees that grow on these soils are cypress, sweetgum, magnolia, poplar, and oak. The understory consists of shrubs, such as sweetbay, palmetto, and waxmyrtle, and of grasses, such as longleaf uniola, giant cutgrass, and switch cane.

MARSHLAND

Tidal marsh is the only mapping unit in this site. It consists of areas of sandy material, mainly near the shore and of silty clay and clay farther from the shore. The areas are nearly level or concave; slopes are less than 5 percent. The elevation ranges from 2 feet above to 2 feet below the level of the gulf. Minor differences in elevation have had a great effect on the dominant vegetation. Most of the soil material is gray, but there are some mottles of pale yellow and brown.

This land type is very poorly drained. The water table is near the surface, or water is ponded on the surface most of the year. When the tide is high, much of the acreage is flooded by salt water from the gulf, especially during storms. The areas are also flooded by fresh water that comes from the higher areas and from rain.

The climate is subtropical. The average annual rainfall is about 65 inches.

If areas of this range site are managed carefully, the ranges that are only slightly salty can be used throughout the year. The more saline ranges can be used only from about October 15 to May 15. After May 15 the areas are heavily infested with mosquitoes and undesirable plants. On this site the average frost-free period is 270 days or more.

The following plants grow in areas of salt marsh:

	Location
Smooth cordgrass.	At the edge of waters of the gulf.
Seashore saltgrass; saltmarsh bulrush.	In areas covered by salt water.
Marshhay cordgrass; Olney bulrush.	In areas covered by brackish water.
Big cordgrass; common reed; gulf cordgrass.	On brackish flats and in salty areas of the uplands.

Plants that grow in areas of fresh-water marsh can generally be grouped according to the areas in which they

grow. Cattail and bulrush grow in the same area, maidencane and cutgrass generally grow in different areas, and jamaica sawgrass grows in still another area. Maidencane, giant cutgrass, and common reed are the most nutritious plants that grow in marshes covered by fresh water.

Practices of range management

Practices applicable on rangeland include proper grazing of the woodlands, proper development of watering places, and proper salting.

Proper woodland grazing consists of grazing areas where the growing of trees is a planned land use. Grazing should be at an intensity that will maintain an adequate protective cover for the soils, that will maintain or improve the quantity and quality of the trees and forage plants, and that will prevent damage to the soils and to the sources of moisture

Areas of woodlands suitable for grazing are the pine woodlands in the area called the Forested Coastal Plain. These produce a fairly large amount of forage plants as a part of the woodland plant community. Other wooded areas can also be grazed conservatively if the timber and watershed resources will not be seriously damaged by domestic livestock. Table 8 indicates the proper degree of use, the best season of use, and the key forage plants for the four woodland range sites in Baldwin County.

TABLE 8.—*Proper degree of use, best season of use, and key forage plants to grow on the four woodland range sites*

Site	Proper degree of use	Best season of use	Key forage plants
	Percent		
Coastal Plain Flatwoods.	50	Apr. 1 to Sept. 15.	Bluestem, wiregrass, panicum.
Coastal Plain Hills	50	Apr. 1 to Sept. 15.	Wiregrass, bluestem, Indiangrass.
Coastal Plain Sands.	40	Apr. 1 to Aug. 1.	Bluestem, wiregrass.
Coastal Plain Bottom Lands (Canebreaks-Hardwoods).	60	Nov. 1 to Mar. 1.	Switch cane, uniola.

At least 80 percent of a field should be grazed evenly through proper location of watering places, progressive salting, and adequate fences. If cattle are kept on woodland range during winter, they will need a protein supplement to keep them healthy and to discourage them from browsing the pines.

Except on salt marsh, salting is needed on all rangeland where the size of the fields, the location of watering places, or the nature of the forage result in uneven grazing. Salting is the placing of salt on the range in a manner to improve the distribution of grazing. It is necessary not only to avoid uneven grazing, but also to supply the mineral elements required to keep livestock healthy, productive, and easy to manage.

Following are suggestions for proper salting:

1. Salt, plus a calcium and phosphorus mineral mixture, should be available to cattle on native ranges throughout the year.
2. The location of salt, minerals, and supplementary feeds should be changed periodically to lightly grazed areas.
3. For mature cattle, allow 20 to 25 pounds of salt per head annually. For sheep, allow 3 to 4 pounds per year.
4. Additional minerals recommended by the experiment station should also be made available to livestock on the range.

Management of Soils for Wildlife [6]

This section tells about the potential of the soils of Baldwin County as habitats for various kinds of game animals and birds. The kinds of game animals and birds that are most common in the county are squirrel, rabbit, quail, and mourning dove. Deer and wild turkey are plentiful in the northern one-half of the county where a large acreage is wooded. The most common fur-bearing and predatory animals are raccoon, opossum, fox, bobcat, nutria, skunk, beaver, and weasel. Some wild hogs and bear frequent the remote areas on the bottom lands, and a few armadillos inhabit the very sandy areas that border the coast. Both fresh-water and salt-water fishing are good in this county.

Descriptions of wildlife sites

Most of the soils of this county have been grouped in six wildlife sites according to similarities in characteristics that determine their suitability as habitats for wildlife. The information given for each of these sites is not extensive enough to use for detailed planning of wildlife conservation on any one field. However, it provides a means of estimating the capabilities and limitations of the soils for supporting a particular species of wildlife.

The factors considered in grouping the soils were (1) the kind of soils and their ability to support plants useful to wildlife, (2) the kind of vegetation on the areas, and (3) the management needed to maintain a productive habitat for wildlife.

The climate is uniform throughout the county. There are differences, however, in the availability of open water, in the kind of soils, and in the ability of the soils to support useful vegetation. There is also a difference in the ability of the soils to maintain the level of impounded water necessary for certain kinds of wildlife management.

WILDLIFE SITE 1

This site consists mainly of areas of Tidal marsh that are along the gulf coast and bayous and along some of the rivers in the county. Tidal marsh includes both fresh-water and salt-water marshes. In general, most of the areas in the southern and western parts of the county are brackish or salty; most of those at the head of the tidal waters on Mobile Bay are fresh. Nearly all of Tidal marsh is in soil associations 6 and 9, which are described in the section "General Soil Map."

[6] By DALE H. ARNER, biologist, and LELAND H. BURGESS, soil scientist.

The areas of Tidal marsh are nearly level or concave. They are at an elevation of 2 feet above to 2 feet below the level of the gulf. The slight difference in elevation has had a great effect on the dominant vegetation. All of this land type is very poorly drained, and water is near the surface or ponded on the surface most of the time. At high tide, especially during storms, much of it is flooded by salt water from the gulf.

The soil material near the shore consists of sand, but farther back from the shore it is mainly clay or silty clay. Most of the soil material is gray, but there are some mottles of pale yellow and brown.

The vegetation consists mainly of a dense growth of native marsh grasses, but in places there are a few scrub trees. The marsh grasses are needlegrass and cordgrass. These grasses have little value for providing food for ducks.

The salt marshes along the coast are commonly used as sites for duckponds. These areas are not suitable for trees, nor are they suitable for cultivated crops or improved pastures, but good ponds can be developed.

If a pond is to be developed, dikes should be built that are high enough so that at least 2 feet of water can be impounded. The dikes are generally constructed by using a dragline. Impounding 2 feet of water will eradicate most of the undesirable plants. A native aquatic plant, wigeongrass, can then be introduced and maintained with little effort. Wigeongrass grows best in water that is 1 percent saline, or about one-third the salinity of gulf water. A pump that will operate against a low head, such as is used for flood irrigation, is normally sufficient to fill the pond with water and, if necessary, to replace water lost through evaporation. It can also be used to make the water more saline if a great deal of fresh water has drained into the pond.

Although areas of Tidal marsh that are covered by fresh water are not suited to wigeongrass, they do afford some feeding areas for ducks. These fresh-water areas also support plants that provide food for muskrat, nutria, and certain other fur-bearing animals.

WILDLIFE SITE 2

This site consists of deep, poorly drained or very poorly drained soils that are in depressions and on bottom lands along drainageways. The soils are nearly level to gently sloping and are at an elevation of 5 to 50 feet above sea level. All of the acreage is subject to flooding, and a large part is under water much of the time. Most of the acreage in this site is in soil association 1. Land types and soils of the following series are in this wildlife site:

Bibb.	Mantachie.
Grady.	Sandy alluvial land.
Hyde and Bayboro soils and Muck.	Swamp.
	Wet clayey alluvial land.
Iuka.	Wet loamy alluvial land.

In these soils the texture in the upper part of the soil material ranges from silty clay loam to sandy loam. In the lower part it ranges from silty clay to clay. In areas near the gulf, the mineral soil material is underlain by peat and muck. Permeability is moderate to slow in the upper layers of these soils that are back from the streams and slow in the lower layers. In the areas near the larger streams, permeability is moderate to rapid because the soil material is coarse textured.

The flood plains of the Mobile, Tensaw, Fish, and Styx Rivers, and some of the lands adjoining them are favorable habitats for deer, turkey, and squirrel. Black bear frequent the more remote areas. These types of wildlife benefit from forestry practices that increase their principal food—acorns and hickory nuts. Hardwoods, such as ash, maple, gum, and elm, should be cut selectively to create openings in the forest where haw, swamp dogwood, grape, holly, and other shrubs can grow. Selective cutting would provide additional food for wildlife.

Fescue and whiteclover can be planted for deer and turkey on small areas of higher land. Because of the large number of deer now living in this area, a future problem will probably be to kill enough deer to keep the herd in balance with the food supply.

Flat, wooded areas several acres in size, which can be flooded with water to a depth of 1 to 15 inches by constructing dikes on one or more sides, make desirable duckponds. In many parts of this area, pumps, such as those that operate against a low head, will be needed to flood the areas. In some areas, they will be needed to provide adequate drainage for planting.

Acorns and beechnuts are choice food for ducks. Smartweed, panicum, and red-rooted sedge furnish additional food in areas where the tree canopy is open. Other areas can be cleared and planted to browntop millet, Japanese millet, or smartweed.

WILDLIFE SITE 3

This site consists of poorly drained to moderately well drained soils that have slopes of 0 to 12 percent. The soils are mostly at an elevation of 10 to 50 feet above sea level, or somewhat higher than the soils of site 1. Most of the acreage is in soil associations 2 and 7. Soils of the following series are in this site:

Flint.	Myatt.
Izagora.	Plummer.
Klej.	Rains.
Leaf.	Robertsdale.
Leon.	Scranton.
Lynchburg.	Wahee.

These soils are less subject to flooding than those of site 2. The poorly drained soils, however, have a high water table, or water is ponded on the surface much of the time during the winter and after heavy storms. The Rains, Plummer, Lynchburg, Klej, and Scranton soils have a subsoil that is moderate to rapid in permeability. The other soils are slowly permeable, either because they are clayey or because they have a pan at a depth of 20 to 30 inches. Nearly all of the soils have slowly permeable material at a depth of 4 to 6 feet.

The principal kind of natural vegetation is pine. There are also some scrub hardwoods and native grasses, mainly pinehill and little bluestem, switchgrass, maidencane, sedges, rushes, and low panicum.

In the more mature stands of pine on the higher areas, food for quail can be established by disking, chopping, or burning over the areas. Kobe lespedeza and partridgepea should then be seeded and fertilizer added. This type of cultivation will also increase the growth of food plants

suitable for deer and turkey. Ryegrass, crimson clover, or chufa can be planted in openings to supply winter food for deer and turkey.

WILDLIFE SITE 4

This site consists of sandy, droughty soils that are nearly level or gently sloping. The soils are low in capacity for storing available moisture. Most of the acreage is in soil associations 3, 7, and 9. The following land type and soils of the following series are in this site:

Coastal beaches.
Eustis.
Lakeland.
Lakewood.
St. Lucie.

The principal kinds of trees on these soils are longleaf and loblolly pines, and turkey, blackjack, bluejack, post, laurel, and southern red oaks. The ground cover is made up mainly of little bluestem, pinehill bluestem, tickclover, huckleberry, and palmetto.

In the more mature stands of pine, food for quail can be supplied by disking, chopping, or burning over the areas and then adding fertilizer and seeding Kobe lespedeza and partridgepea. This type of cultivation will also increase the growth of food plants suitable for deer and turkey.

WILDLIFE SITE 5

This site consists of soils that are moderately well drained or well drained. The soils are mainly nearly level to gently sloping, but a few areas are included that have slopes of as much as 10 percent. Most of the acreage is on the higher uplands of the county; a small part is on the higher parts of the stream terraces. Soils of the following series are in this site:

Bowie.
Cahaba.
Carnegie.
Faceville.
Goldsboro.
Greenville.
Irvington.
Kalmia.
Magnolia.
Marlboro.
Norfolk.
Orangeburg.
Red Bay.
Ruston.
Savannah.
Tifton.

These soils are moderately permeable to a depth of 20 inches and are slowly permeable below that depth. In most places the soil material to a depth of several feet is favorable for root growth.

A large part of the acreage is cultivated. On the areas that are not cultivated, the overstory consists of longleaf pine, loblolly pine, slash pine, oak, gum, hickory, and sweetbay. The ground cover is made up mainly of little bluestem, pinehill bluestem, and switchgrass, but there is some slender bluestem, low panicum, and three-awn. Huckleberry, yaupon, gallberry, waxmyrtle, and laurel are also common.

The cultivated areas provide favorable habitats for rabbits, doves, and bobwhite quail. Lack of protective cover is probably the main factor that limits the number of quail that frequent those areas. Harvest waste from the soybean and corn crops is an abundant source of food for quail and doves. Browntop millet, a good food for doves, grows well on these soils.

WILDLIFE SITE 6

This site consists of soils that have slopes of 5 to 25 percent. The soils vary in depth over a layer of very slowly permeable material, and the soil material to a depth of 2 to 4 feet varies in texture and in permeability. Soils of the following series are in this site:

Bowie.
Cuthbert.
Sunsweet.

A large part of this site is in trees, mainly loblolly pine, longleaf pine, and scrub hardwoods. Deer are plentiful and there are some turkeys. The open areas can be planted to chufa, which will supply food for turkeys. If a good stand of winter grasses and legumes is established, these plants will provide good grazing for deer and turkeys. Where there are open areas, good habitats for quail can be developed. Kobe lespedeza, partridgepea, and bicolor lespedeza grow well in open areas and are good plants for food.

Use of Soils for Roads, Foundations, and Earthworks [7]

Soil engineering is a part of structural engineering. It deals with the suitability of the soils as foundation material on which the structure will rest and with the suitability of the soils for use as structural material. The soils are generally used at their original location and in the form in which they occur. A large part of soil engineering consists of locating the various kinds of soils and of determining their engineering properties. It also consists of determining the way those properties meet the requirements of the job and of selecting the best material available for each job.

This soil survey report contains information about the soils of Baldwin County that will help engineers to select locations for highways and pipelines and to locate sand and gravel for use in construction. The report will also help engineers who wish to construct farm ponds and other structures to control and conserve soil and water.

While working at the site of construction, the engineer may excavate soils of many different kinds within short distances. The soil maps and profile descriptions, as well as the engineering data given in this section, should be used in planning a detailed survey of the soils at the proposed site of construction. The report will supplement information obtained from other published maps and reports and from aerial photographs for the purpose of making soil maps and reports that can be used readily by engineers. The soil map will also be useful in estimating the amount of runoff from watersheds and in estimating the size and kind of culverts and bridges to be constructed under roads. The section "General Soil Map" may be of help in obtaining a broad picture of the topographic features of the county and of the general pattern of soils.

The soil map and descriptions in this report do not give enough information for the design and construction of specific structures. They should be used only in planning more detailed field surveys and soil tests to determine the condition of the soils in place at the site of the proposed structure.

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[7] By E. H. McBride, assisted by M. E. Stephens and L. H. Burgess, soil scientists; S. N. Richbourg and B. W. Odom, Jr., engineers, Soil Conservation Service.

Some of the terms used in this section and in other parts of the report are those employed by soil scientists, and they may not be familiar to engineers. Also, some terms, for example, soil, clay, silt, and sand, though familiar, have a special meaning in soil science that is not the same as the meaning ordinarily understood in engineering. Most of these terms, as well as other special terms, are defined in the Glossary at the back of the report.

Engineering classification systems

AASHO classification system.—Most highway engineers classify soil materials in accordance with the system approved by the American Association of State Highway Officials. In this system soil materials are classified in seven principal groups. The groups range from A–1, consisting of gravelly soils of high bearing capacity, to A–7, consisting of clay soils having low strength when wet. In table 9 these groups are estimated for each soil in the county.

Within each of the principal groups, the relative engineering value of the soil material is indicated by a group index number. Group index numbers range from 0 for the best material to 20 for the poorest. For the soils tested, the group index number is shown in parentheses, following the soil group symbol in the next to last column of table 11.

Unified classification system.—Some engineers prefer to use the Unified soil classification system. In this system the soils are identified according to their texture and plasticity and are grouped according to their performance as engineering construction materials. The system establishes 15 soil groups, which are divided as (1) coarse-grained soils (eight classes), (2) fine-grained soils (six classes), and (3) highly organic soils. These groups are shown in table 9. The classification of the tested soils according to the Unified system is given in the last column of table 11.

Engineering descriptions of the soils

This section is intended as a reference guide and not as a manual for using soil materials in engineering. In it a brief description of the soils of the county is given in table 9 and certain characteristics are described that are significant to engineering. The description includes the kind of underlying material. A more complete description of each soil is given in the section "Descriptions of Soils."

The information in table 9 is based on the results of actual tests, shown in table 11, and on data from nearby counties that have similar soils. It is also based on the information given in the rest of the report.

In table 9 the figures given in the column showing depth from surface for each layer are representative of those in a profile that is typical for the series. The estimates are only for the typical soils; therefore, considerable variation from these values should be anticipated. More information on the range of properties of the soils can be obtained in other sections of the report. The soil material in each layer is classified, first according to the textural classes of the U.S. Department of Agriculture, which are based on the relative proportions of sand, silt, and clay in the soil. Then each important layer is classified according to the Unified and AASHO systems. The Unified and AASHO systems are described under the heading "Engineering Classification Systems."

Some of the columns show the amount of material passing through sieves of various sizes. They denote the percentage of soil particles smaller in diameter than the openings in a given screen. The amount of material passing through the No. 200 sieve determines whether a soil material is coarse grained or fine grained. The percentage of particles passing the No. 4, No. 10, and No. 200 sieves was estimated by engineers and by soil scientists of the Soil Conservation Service.

Permeability is the rate at which a soil transmits water and air; it depends largely on the texture and structure of the soils. Table 9 gives the estimated permeability for each important layer, that is, an estimate of the probable rate of water percolation through soil material that is not compacted. The rate is expressed in inches per hour.

The column that shows available water capacity gives the amount of water held in a soil when the soil is wet to field capacity or when the percolation of water downward through the profile has nearly stopped. The available water capacity refers to the amount of water needed to moisten 1 inch of air-dried soil. It is expressed in terms of inches per inch of soil material.

The column showing reaction gives the degree of acidity or alkalinity of the different layers in the soil profile, expressed in pH values. Soil material with a pH value of less than 7.0 is acid, and that with a value of more than 7.0 is alkaline.

The shrink-swell potential indicates the volume change of the soil material to be expected when the content of moisture changes. It is estimated primarily on the basis of the amount and type of clay present. In general, soils classified as CH and A–7 have a high shrink-swell potential. Clean sands and gravels (single-grain structure) and those having small amounts of nonplastic to slightly plastic fines, as well as most other nonplastic to slightly plastic soil materials, have a low shrink-swell potential.

Engineering interpretations

Table 10 rates the soils according to their suitability for the construction of highways and as fields for septic tanks. It also rates them according to their suitability as a source of building material. In addition, it indicates properties of the soils that affect the vertical alinement of highways and the use of the soils for agricultural structures. The suitability of the soils and the factors that affect the structures are evaluated on the basis of information given in the descriptions of the soils. They are also evaluated on information obtained from actual field tests and performance.

According to their suitability for grading in wet weather, for road subgrade, for road fill, and for fields for septic tanks, the soils are given a rating of good, fair, or poor. The suitability of soils for grading in wet weather depends largely on the texture of the soil material, its normal content of water, and the depth to the water table during the wettest part of the year. When a clayey soil is wet, it is difficult to handle and must be

dried to the proper moisture content needed for compaction. Therefore, a clayey soil is given the rating of poor for grading in wet weather.

The suitability of the soil material for road subgrade and for road fill depends largely on the texture of the soil material and on its normal content of water. A highly plastic soil material is given a rating of poor for road subgrade and poor or fair for road fill depending on its normal content of water and the ease with which the soil material can be handled, dried, and compacted.

In evaluating the features that affect the vertical alinement of highways, features that influence the grade of a road are indicated. Also indicated are drainage conditions that might be unfavorable for the construction of highways. Many of the soils have a high perched water table that makes them poorly suited to the construction of highways. In addition, seepage on the back slopes of cuts may cause settling or sliding of the overlying material, and the need for interceptor ditches and drains should therefore be determined. Because of the perched water table, a decrease in the bearing capacity of the foundation soil, below the pavement, may cause the pavement to break up. The excess water can be intercepted and removed through deep side ditches. On some soils that have a high water table, it is necessary to excavate the mucky, sandy, or alluvial material so that there will be a solid foundation on which to put the fill material. Depth to solid foundation material ranges from 2 to 18 feet or more.

In places the lower parts of bottom lands are flooded each year, and, therefore, a continuous embankment may be needed to keep the roadway from being flooded. Suitable material for building an embankment can be obtained from nearby areas of well-drained soils on uplands and terraces.

It is difficult to stabilize the sides of the ditches along roads and to establish a cover of grass on the shoulders when building roads through large areas of unstable loamy sands. In many places concrete or asphalt ditch liners must be used to prevent serious gullying. On steep slopes it is necessary to build grade-control structures. Deep-rooted grasses that will grow on dry sites should be used to stabilize the shoulders of the roads.

Features that affect the suitability of the soils for farm ponds are also described in table 10. Some of the farms in the county do not have a suitable site for an impounded pond, because the soils are unsuitable. Many of the farms, however, have a site that is suitable for a dug pond. On some of the farms, certain areas are better used for a pond than for other purposes. A pond increases the value of the farm, and it provides water for livestock. A pond also is valuable for recreation, and it provides water for fire protection if it is located near buildings. A farm pond is costly to construct. Therefore, a technician of the Soil Conservation Service should be asked to help select a site that is suitable and to help in designing the pond.

The factors that affect drainage are described in table 10, as well as some of the factors that affect the suitability of the soils for irrigation, terraces and diversions, and waterways. Factors that influence the suitability of the soils for irrigation include the moisture-holding capacity and the capacity of the surface layer to take in water. The construction or maintenance of irrigation structures may also be impaired by obstacles to excavating or to the use of canals.

Soil test data

Table 11 gives the engineering test data for soil samples from profiles of a number of soil series in Baldwin County. The data were based on laboratory tests made by the Alabama Highway Department in accordance with standard procedures of the American Association of State Highway Officials.

In table 11 the shrinkage limit of the tested soils is indicated. As moisture leaves a soil, the soil shrinks in proportion to the loss in moisture until a point is reached where shrinkage stops, although additional moisture is removed. This moisture content where shrinkage stops is called the shrinkage limit of the soil and is reported as the moisture content, by ovendry weight of soil.

The liquid limit and plasticity index are also indicated in table 11. Liquid limit refers to the moisture content at which the soil material passes from a plastic to a liquid state. It is expressed as a percentage of the ovendry weight of the soil. The plastic limit refers to the moisture content at which the soil material passes from a semisolid to a plastic state and is expressed as a percentage of the ovendry weight of the soil. The plasticity index is the numerical difference between the liquid limit and the plastic limit.

TABLE 9.—*Brief description of soils in Baldwin County and*

Map symbol	Soil [1]	Depth to seasonally high water table	Soil description [2]	Depth from surface	Classification
					USDA
		Feet		*Inches*	
BoB	Bowie fine sandy loam, 2 to 5 percent slopes.	3	½ to 1 foot of moderately well drained fine sandy loam over 2 feet of sandy clay loam to sandy clay; formed in beds of sandy clay loam to clay.	0 to 12	Fine sandy loam
BoB2	Bowie fine sandy loam, 2 to 5 percent slopes, eroded.			12 to 36	Sandy clay loam to sandy clay.
BoC	Bowie fine sandy loam, 5 to 8 percent slopes.			36 to 77+	Clay
BoD	Bowie fine sandy loam, 8 to 12 percent slopes.				
BtB	Bowie fine sandy loam, thin solum, 2 to 5 percent slopes.	2½	⅔ foot of moderately well drained fine sandy loam over 1¼ feet of fine sandy clay loam or clay loam; formed in beds of sandy clay loam to clay.	0 to 8	Fine sandy loam
BtC	Bowie fine sandy loam, thin solum, 5 to 8 percent slopes.			8 to 23	Fine sandy clay loam, or clay loam.
				23 to 35+	Clay
CaB	Cahaba fine sandy loam, 2 to 5 percent slopes.	4	1¼ feet of well-drained fine sandy loam or sandy loam over 1⅓ feet of sandy clay loam; formed in alluvium of sandy clay loam to sandy clay.	0 to 15	Fine sandy loam or sandy loam.
				15 to 31	Sandy clay loam
				31 to 52+	Sandy clay loam to sandy clay.
CgA	Carnegie very fine sandy loam, 0 to 2 percent slopes.	4	⅚ foot of well-drained very fine sandy loam over 2½ feet of clay loam or sandy clay loam; formed in sandy clay loam to sandy clay.	0 to 10	Very fine sandy loam
CgB	Carnegie very fine sandy loam, 2 to 5 percent slopes.			10 to 40	Clay loam or sandy clay loam.
CgB2	Carnegie very fine sandy loam, 2 to 5 percent slopes, eroded.			40 to 52	Sandy clay
CgC	Carnegie very fine sandy loam, 5 to 8 percent slopes.				
CgC2	Carnegie very fine sandy loam, 5 to 8 percent slopes, eroded.				
CgD	Carnegie very fine sandy loam, 8 to 12 percent slopes.				
CgD2	Carnegie very fine sandy loam, 8 to 12 percent slopes, eroded.				
Co	Coastal beaches.	0	10 to 20 feet of wet sand	0 to 240	Sand
CtB	Cuthbert fine sandy loam, 2 to 5 percent slopes.	2	¾ foot of moderately well drained fine sandy loam over ¾ foot of sandy clay; formed in beds of silty clay, clay, sandy loam, or clay.	0 to 9	Fine sandy loam
CtC	Cuthbert fine sandy loam, 5 to 8 percent slopes.			9 to 18	Sandy clay
				18 to 82	Silty clay, clay, sandy loam, or sandy clay.
CtD	Cuthbert fine sandy loam, 8 to 12 percent slopes.				
CtE	Cuthbert fine sandy loam, 12 to 17 percent slopes.				
EuB	Eustis loamy fine sand, 0 to 5 percent slopes.	6	3 feet of excessively drained loamy fine sand over heavy sandy loam or beds of loamy fine sand and sand.	0 to 37	Loamy fine sand
EuC	Eustis loamy fine sand, 5 to 8 percent slopes.			37 to 54+	Heavy sandy loam
EuD	Eustis loamy fine sand, 8 to 12 percent slopes.				
FaA	Faceville fine sandy loam, 0 to 2 percent slopes.	3½	½ foot of well-drained fine sandy loam over 4 feet of loam and clay loam; formed in beds of loam to sandy clay loam.	0 to 7	Fine sandy loam
FaB	Faceville fine sandy loam, 2 to 5 percent slopes.			7 to 55	Loam and clay loam
FaB2	Faceville fine sandy loam, 2 to 5 percent slopes, eroded.			55 to 60+	Clay loam
FaC	Faceville fine sandy loam, 5 to 8 percent slopes.				
FaC2	Faceville fine sandy loam, 5 to 8 percent slopes, eroded.				

See footnotes at end of table.

their estimated physical properties significant to engineering

Classification—Continued		Percentage passing sieve—			Permeability	Available water capacity	Reaction	Shrink-swell potential
Unified	AASHO	No. 4	No. 10	No. 200				
					Inches per hour	*Inches per inch of depth*		
SM	A-4	95–100	95–100	35–45	2. 0 to 10. 0	0. 07 to 0. 10	4. 5 to 5. 5	Low.
CL, SM–SC, or ML–CL.	A-4, A-2	95–100	65–100	30–60	0. 8 to 2. 0	0. 10 to 0. 13	4. 5 to 5. 0	Moderate.
CL or CH	A-6 or A-7-6	95–100	95–100	50–85	0. 2 to 0. 8	0. 07 to 0. 08	4. 5 to 5. 0	High.
SM	A-4	95–100	90–100	35–45	2. 0 to 10. 0	0. 07 to 0. 10	5. 1 to 5. 5	Low.
CL, SM–SC, or ML–CL.	A-4	95–100	65–100	30–60	0. 8 to 2. 0	0. 10 to 0. 13	5. 1 to 5. 5	Moderate.
CL or CH	A-6 or A-7-6	95–100	95–100	50–85	0. 2 to 0. 8	0. 07 to 0. 08	5. 1 to 5. 5	High.
SM	A-4	100	100	35–45	2. 0 to 10. 0	0. 07 to 0. 10	5. 1 to 6. 0	Low.
SM, ML–CL, or CL	A-4	100	100	35–55	0. 8 to 2. 0	0. 08 to 0. 12	4. 5 to 5. 0	Moderate.
ML–CL, or CL	A-4 or A-6	100	100	50–70	0. 2 to 0. 8	------------	------------	Moderate.
SM or ML–CL	A-2	90–95	90–95	30–35	2. 0 to 10. 0	0. 08 to 0. 12	5. 1 to 6. 0	Low.
CL	A-6	90–100	90–95	50–60	0. 8 to 2. 0	0. 08 to 0. 15	5. 1 to 5. 5	Moderate.
ML–CL	A-6	100	100	50–60	0. 2 to 0. 8	0. 07 to 0. 08	5. 1 to 5. 5	Moderate.
SP	A-3	100	100	0–5	10. 0+	0. 03 to 0. 04	------------	Low.
SM or ML	A-2-4 or A-4	90–100	85–100	35–55	2. 0 to 10. 0	0. 03 to 0. 07	4. 5	Low.
SC, CL, or ML-CL	A-4, A-6, or A-7-6.	98–100	95–100	45–65	0. 2 to 0. 8	0. 07 to 0. 08	4. 5	Moderate.
ML–CL or CL	A-7-6 or A-4	100	100	60–95	0 to 0. 2	0. 05 to 0. 08	4. 5	Moderate.
SM	A-2-4	100	100	15–25	10. 0+	0. 03 to 0. 07	5. 1 to 5. 5	Low.
SM or CL	A-2-4 or A-4	100	100	20–55	6. 0 to 10. 0+	0. 03 to 0. 07	5. 1 to 5. 5	Low.
ML or SM	A-4	100	100	40–60	2. 0 to 10. 0	0. 05 to 0. 10	4. 5 to 5. 0	Low.
CL or ML–CL	A-4, A-6	100	100	55–70	0. 8 to 2. 0	0. 10 to 0. 15	4. 5 to 5. 0	Moderate.
CL or SC	A-4, A-6	100	100	45–65	0. 2 to 2. 0	0. 10 to 0. 15	4. 5 to 5. 0	Moderate.

TABLE 9.—*Brief description of soils in Baldwin County and their*

Map symbol	Soil [1]	Depth to seasonally high water table	Soil description [2]	Depth from surface	Classification: USDA
		Feet		*Inches*	
FsB	Flint silt loam, 2 to 5 percent slopes.	1	½ foot of moderately well drained silt loam and loam over 1½ feet of silty clay to clay; formed in alluvium of silty clay to clay.	0 to 6 6 to 24 24 to 38+	Silt loam and loam Silty clay to clay Clay
GoA GoB GoC	Goldsboro fine sandy loam, 0 to 2 percent slopes. Goldsboro fine sandy loam, 2 to 5 percent slopes. Goldsboro fine sandy loam, 5 to 8 percent slopes.	2	⅚ foot of moderately well drained fine sandy loam over 1¾ feet of fine sandy loam; formed in beds of sandy loam to sandy clay loam.	0 to 10 10 to 31 31 to 60+	Fine sandy loam Fine sandy loam Fine sandy loam
Gr	Grady soils.	0	1⅚ feet of poorly drained or very poorly drained silty clay loam over 2⅙ feet of clay; formed in deposits of sandy clay loam to clay.	0 to 10 10 to 36 36+	Silty clay loam Clay Sandy clay
GvA GvB GvB2 GvC2	Greenville loam, 0 to 2 percent slopes. Greenville loam, 2 to 5 percent slopes. Greenville loam, 2 to 5 percent slopes, eroded. Greenville loam, 5 to 8 percent slopes, eroded.	5	½ foot of well-drained loam over 6½ feet of sandy clay loam or clay loam; formed in clay loam.	0 to 6 6 to 60 60 to 72	Loam Sandy clay loam Clay loam
IrA IrB	Irvington loam, 0 to 2 percent slopes. Irvington loam, 2 to 5 percent slopes.	2	⅚ foot of moderately well drained loam to fine sandy loam over 3⅙ feet of fine sandy clay loam; formed in clay loam to sandy clay loam.	0 to 10 10 to 48 48 to 60+	Loam to heavy fine sandy loam. Fine sandy clay loam Sandy clay loam and sandy clay.
Iu	Iuka silt loam.	2	1 foot of moderately well drained silt loam over 2½ feet of alluvium consisting of silty clay and silt loam.	0 to 11 11 to 42 42+	Silt loam Silty clay and silt loam Silty clay and silt loam
IzA IzB	Izagora very fine sandy loam, 0 to 2 percent slopes. Izagora very fine sandy loam, 2 to 5 percent slopes.	2	1¼ feet of moderately well drained very fine sandy loam to fine sandy loam over ¼ foot of light fine sandy clay loam to light fine sandy clay; formed in alluvium consisting of fine sandy clay to clay.	0 to 15 15 to 30 30 to 52+	Very fine sandy loam to fine sandy loam. Light fine sandy clay loam to light fine sandy clay. Fine sandy clay to clay
KaA KaB	Kalmia fine sandy loam, 0 to 2 percent slopes. Kalmia fine sandy loam, 2 to 5 percent slopes.	3	1 foot of moderately well drained or well drained fine sandy loam over sandy clay loam; formed in alluvium consisting of sandy clay loam to loamy sand.	0 to 13 13 to 41 41 to 50+	Fine sandy loam Sandy clay loam Sandy clay loam to loamy sand.
KlB KlC	Klej loamy fine sand, 0 to 5 percent slopes. Klej loamy fine sand, 5 to 8 percent slopes.	1	4 feet of moderately well drained loamy fine sand; formed in loamy fine sand to sand.	0 to 52+ 52 to 60+	Loamy fine sand Sandy clay loam
LaB LaC LaD LaE	Lakeland loamy fine sand, 0 to 5 percent slopes. Lakeland loamy fine sand, 5 to 8 percent slopes. Lakeland loamy fine sand, 8 to 12 percent slopes. Lakeland loamy fine sand, 12 to 17 percent slopes.	5	6 feet of somewhat excessively drained loamy fine sand; formed in loamy fine sand and sand.	0 to 72+	Loamy fine sand
LkB	Lakewood sand, 0 to 5 percent slopes.	6	6 feet of excessively drained sand; formed in sand.	0 to 72+	Sand

See footnotes at end of table.

estimated physical properties significant to engineering—Continued

Classification—Continued		Percentage passing sieve—			Permeability	Available water capacity	Reaction	Shrink-swell potential
Unified	AASHO	No. 4	No. 10	No. 200				
					Inches per hour	*Inches per inch of depth*		
ML	A-4	100	100	50-65	0. 8 to 2. 0	0. 05 to 0. 10	4. 5 to 5. 5	Moderate.
CL	A-6, A-7	100	100	60-75	0. 2 to 0. 8	0. 08 to 0. 15	4. 5 to 5. 0	Moderate.
CH	A-7	100	100	60-75	0. 2 to 0. 8	0. 05 to 0. 10	4. 5 to 5. 0	High.
SM or ML	A-2-4 or A-4	100	97-100	20-50	2. 0 to 10. 0	0. 05 to 0. 10	4. 5 to 5. 5	Low.
ML, ML-CL, or SM	A-2-4 or A-4	100	98-100	20-65	0. 8 to 2. 0	0. 08 to 0. 13	4. 5 to 5. 0	Low.
ML-CL or SM	A-2-4 or A-4	100	98-100	15-55	0. 2 to 0. 8	0. 08 to 0. 13	4. 5 to 5. 0	Low.
ML, CL or SC	A-2, A-4, A-6	100	100	30-60	0. 2 to 0. 8	0. 10 to 0. 15	4. 5 to 5. 0	Moderate.
CH	A-6, A-7		100	60-70	0 to 0. 2	0. 10 to 0. 13	4. 5 to 5. 0	High.
SC or CL	A-6, A-7	75-100	65-100	35-65	0 to 0. 2	0. 08 to 0. 12	4. 5 to 5. 0	Moderate.
ML, ML-CL or SM	A-4 or A-2-4	100	98-100	30-70	0. 8 to 2. 0	0. 07 to 0. 10	4. 5 to 5. 5	Low.
CL or SM-SC	A-4 or A-6	100	98-100	35-60	0. 8 to 2. 0	0. 07 to 0. 13	4. 5 to 5. 5	Moderate.
SC, CL or SM	A-4	100	98-100	40-55	0. 8 to 2. 0	0. 07 to 0. 12	4. 5 to 5. 5	Low.
ML or SM-SC	A-4	85-100	75-100	40-70	0. 8 to 2. 0	0. 10 to 0. 13	5. 1 to 5. 5	Low to moderate.
ML-CL	A-4	90-100	70-100	45-70	0. 2 to 2. 0	0. 10 to 0. 13	4. 5 to 5. 5	Moderate.
SC or CL	A-4 or A-6	85-90	80-95	45-60	0. 2 to 0. 8	0. 10 to 0. 13	4. 5 to 5. 0	Moderate.
SM or ML	A-4	100	100	40-60	0. 8 to 2. 0	0. 10 to 0. 15	4. 5 to 5. 0	Moderate.
CL	A-4, A-6	100	100	50-65	0. 2 to 0. 8	0. 10 to 0. 15	4. 5 to 5. 0	Moderate.
CL or ML	A-4, A-6	100	100	50-65				Moderate.
SM	A-4	100	100	35-45	2. 0 to 10. 0	0. 07 to 0. 10	5. 1 to 5. 5	Low.
SM or SC	A-4	100	100	40-50	0. 8 to 2. 0	0. 07 to 0. 12	5. 1 to 5. 5	Low.
SC, CL	A-6	100	100	45-65	0. 2 to 0. 8	0. 08 to 0. 13	5. 1 to 5. 5	Moderate.
SM or CL	A-4	100	100	35-45	2. 0 to 10. 0	0. 07 to 0. 10	5. 1 to 6. 0	Low.
SM, SC	A-4	100	100	45-60	0. 8 to 2. 0	0. 08 to 0. 12	5. 1 to 6. 0	Low.
CL, SC, SM, SP, or GP.	A-2-4, A-3, or A-4.	100	45-100	5-60	0. 2 to 10. 0	0. 04 to 0. 10	5. 1 to 6. 0	Low.
SM	A-2-4 or A-4	100	100	15-40	2. 0 to 10. 0	0. 05 to 0. 10	4. 5 to 5. 5	Low.
SM or CL	A-4 or A-6	100	100	35-65	0. 8 to 2. 0	0. 07 to 0. 10	4. 5 to 5. 5	Low to moderate.
SM	A-2-4 or A-1-b	95-100	85-100	10-20	6. 0 to 10. 0+	0. 03 to 0. 07	5. 1 to 5. 5	Low.
SP	A-3	100	100	0-5	10. 0+	0. 03 to 0. 05	4. 5 to 5. 0	Low.

TABLE 9.—*Brief description of soils in Baldwin County and their*

Map symbol	Soil [1]	Depth to seasonally high water table	Soil description [2]	Depth from surface	Classification — USDA
		Feet		*Inches*	
Lm	Leaf silt loam.	0	1/6 foot of poorly drained silt loam over 3 feet of silty clay to clay; formed in alluvium consisting of clay and silty clay.	0 to 2	Silt loam
				2 to 40	Silty clay and clay
Ls	Leon sand.	0	3 1/3 feet or more of poorly drained sand; formed in sand.	0 to 40	Sand
LyA	Lynchburg fine sandy loam, 0 to 2 percent slopes.	1	5/6 foot of somewhat poorly drained fine sandy loam over 3 1/2 feet of fine sandy loam to sandy loam; formed in sandy loam.	0 to 10	Fine sandy loam
LyB	Lynchburg fine sandy loam, 2 to 5 percent slopes.			10 to 42	Fine sandy loam to sandy loam.
LyC	Lynchburg fine sandy loam, 5 to 8 percent slopes.				
MgA	Magnolia fine sandy loam, 0 to 2 percent slopes.	4	1/2 foot of well-drained fine sandy loam over 5 feet of sandy clay loam to clay loam; formed in clay loam and sandy clay loam.	0 to 7	Fine sandy loam
MgB	Magnolia fine sandy loam, 2 to 5 percent slopes.			7 to 66+	Sandy clay loam to clay loam.
MgB2	Magnolia fine sandy loam, 2 to 5 percent slopes, eroded.				
MgC2	Magnolia fine sandy loam, 5 to 8 percent slopes, eroded.				
Mn	Mantachie silt loam.	1	1/4 foot of somewhat poorly drained silt loam over 3 feet or more of silty clay and clay; formed in alluvium.	0 to 3	Silt loam
				3 to 37+	Silty clay and clay
MrA	Marlboro very fine sandy loam, 0 to 2 percent slopes.	3+	2/3 foot of well-drained very fine sandy loam over 5 2/3 feet of fine sandy clay loam; formed in loam to sandy clay.	0 to 8	Very fine sandy loam
MrB	Marlboro very fine sandy loam, 2 to 5 percent slopes.			8 to 52	Fine sandy clay loam
MrB2	Marlboro very fine sandy loam, 2 to 5 percent slopes, eroded.			52 to 76	Fine sandy clay loam
My	Myatt very fine sandy loam.	0	1 2/3 feet of poorly drained very fine sandy loam over 1 foot of sandy clay loam; formed in alluvium consisting of heavy sandy clay loam to clay.	0 to 20	Very fine sandy loam
				20 to 32	Sandy clay loam
				32 to 52+	Heavy sandy clay loam
NoA	Norfolk fine sandy loam, 0 to 2 percent slopes.	3	2 2/3 feet of well-drained loamy sand to heavy sandy loam over 1 1/4 feet of sandy clay loam; formed in sandy clay loam.	0 to 32	Loamy sand to heavy sandy loam.
NoB	Norfolk fine sandy loam, 2 to 5 percent slopes.			32 to 47	Sandy clay loam
NoB2	Norfolk fine sandy loam, 2 to 5 percent slopes, eroded.			47 to 60+	Sandy clay loam
NoC	Norfolk fine sandy loam, 5 to 8 percent slopes.				
Ok	Okenee soils.	0	1 1/3 feet of very poorly drained silt loam over 1 3/4 feet of silty clay loam; formed in alluvium consisting of silty clay.	0 to 16	Mucky silt loam
				16 to 37	Silty clay loam
				37 to 48+	Silty clay
OrA	Orangeburg fine sandy loam, 0 to 2 percent slopes.	5	2 1/4 feet of well-drained fine sandy loam over 3 1/3 feet of sandy clay loam; formed in sandy loam to sandy clay loam.	0 to 27	Fine sandy loam to heavy sandy loam.
OrB	Orangeburg fine sandy loam, 2 to 5 percent slopes.			27 to 66+	Sandy clay loam
OrB2	Orangeburg fine sandy loam, 2 to 5 percent slopes, eroded.				
OrC	Orangeburg fine sandy loam, 5 to 8 percent slopes.				
OrD2	Orangeburg fine sandy loam, 8 to 12 percent slopes, eroded.				

See footnotes at end of table.

estimated physical properties significant to engineering—Continued

Classification—Continued		Percentage passing sieve—			Permeability	Available water capacity	Reaction	Shrink-swell potential
Unified	AASHO	No. 4	No. 10	No. 200				
					Inches per hour	*Inches per inch of depth*		
ML	A–4	100	100	50–60	0.8 to 2.0	0.10 to 0.15	5.1 to 5.5	Low.
CL or CH	A–6, A–7	100	100	60–70	0.2 to 0.8	0.07 to 0.15	4.5 to 5.5	Moderate to high.
SP	A–3	100	100	0–5	0.2 to 10.0	0.03 to 0.05	<4.5 to 5.0	Low.
SM–SC or SM	A–4 or A–2–4	100	100	30–40	2.0 to 10.0	0.07 to 0.10	4.5 to 5.5	Low.
SM–SC or SC	A–2–4 or A–4	100	100	30–45	0.8 to 2.0	0.07 to 0.12	4.5 to 5.0	Low.
SM, ML	A–4	100	100	30–60	2.0 to 10.0	0.07 to 0.10	5.1 to 5.5	Low.
CL, ML–CL, SM–SC, SC, or SM.	A–4 or A–6	100	100	40–65	0.8 to 2.0	0.11 to 0.13	4.5 to 5.0	Moderate.
ML or ML–CL	A–4	100	100	50–60	0.8 to 2.0	0.10 to 0.15	4.5 to 5.0	Moderate.
CL or CH	A–6 or A–7	100	100	50–70	0 to 0.8	0.12 to 0.17	4.5 to 5.0	Moderate to high.
SM or ML	A–4	100	98–100	45–60	0.8 to 2.0	0.10 to 0.15	5.1 to 6.0	Low.
CL or ML–CL	A–4	100	98–100	55–70	0.8 to 2.0	0.12 to 0.20	4.5 to 5.5	Moderate.
ML–CL, CL, or SC	A–4 or A–6	100	98–100	45–65	0.2 to 0.8	0.10 to 0.15	4.5 to 5.5	Moderate.
SM	A–4	100	100	35–50	2.0 to 10.0	0.07 to 0.08	4.5 to 5.5	Low.
SM–SC	A–4	100	100	40–50	0.2 to 2.0	0.08 to 0.12	4.5 to 5.0	Low.
SC or CL	A–4, A–6	100	100	45–55	0.2 to 0.8	0.08 to 0.10	4.5 to 5.0	Moderate.
SM	A–2–4 or A–4	100	98–100	20–45	2.0 to 10.0	0.07 to 0.10	4.5 to 5.5	Low.
SM or SM–SC	A–2–4 or A–4	100	97–100	20–50	2.0 to 10.0	0.08 to 0.10	4.5 to 5.0	Low.
SM–SC, CL, or SM	A–2–4, A–4, A–6 or A–7–6.	90–100	85–100	30–65	0.2 to 2.0	0.05 to 0.12	4.5 to 5.0	Low to moderate.
Pt		(3)	(3)	(3)	2.0 to 10.0	0.15 to 0.20	4.5 to 5.0	High.
CL	A–6	100	100	55–65	0.2 to 2.0	0.10 to 0.15		Moderate.
CL or CH	A–6 or A–7	100	100	60–70	0.2 to 0.8	0.08 to 0.12		Moderate to high.
SM	A–4	100	100	40–50	2.0 to 10.0	0.07 to 0.10	4.5 to 5.5	Low.
SM–SC	A–4	100	100	40–60	0.8 to 2.0	0.08 to 0.12	4.5 to 5.0	Low.

TABLE 9.—*Brief description of soils in Baldwin County and their*

Map symbol	Soil [1]	Depth to seasonally high water table	Soil description [2]	Depth from surface	Classification
					USDA
		Feet		*Inches*	
PmB PmC	Plummer loamy sand, 0 to 5 percent slopes. Plummer loamy sand, 5 to 12 percent slopes.	0	4⅓ feet of poorly drained loamy sand over 4 feet of sandy clay loam to clay; formed in sandy clay loam to clay.	0 to 52 52 to 96+	Loamy sand Sandy clay loam to clay
RaA RaB RaC	Rains fine sandy loam, 0 to 2 percent slopes. Rains fine sandy loam, 2 to 5 percent slopes. Rains fine sandy loam, 5 to 8 percent slopes.	0	2½ feet of poorly drained fine sandy loam over 1 foot of fine sandy clay loam; formed in sandy clay.	0 to 29 29 to 42 42 to 70+	Fine sandy loam Fine sandy clay loam Sandy clay
RbA RbB	Red Bay fine sandy loam, 0 to 2 percent slopes. Red Bay fine sandy loam, 2 to 5 percent slopes.	6	1¼ feet of well-drained fine sandy loam over 3 feet of sandy loam to sandy clay loam; formed in sandy loam and sandy clay loam.	0 to 15 15 to 50 50 to 80+	Fine sandy loam Sandy loam to sandy clay loam. Sandy loam
Rr	Robertsdale loam.	1	½ foot of somewhat poorly drained loam over 2½ feet of light clay loam to fine sandy clay loam.	0 to 7 7 to 36 36 to 58+	Loam Light clay loam to fine sandy clay loam. Fine sandy clay loam to clay loam.
RuA RuB RuB2 RuC RuC2 RuD	Ruston fine sandy loam, 0 to 2 percent slopes. Ruston fine sandy loam, 2 to 5 percent slopes. Ruston fine sandy loam, 2 to 5 percent slopes, eroded. Ruston fine sandy loam, 5 to 8 percent slopes. Ruston fine sandy loam, 5 to 8 percent slopes, eroded. Ruston fine sandy loam, 8 to 12 percent slopes.	5	2½ feet of well-drained sandy loam over 1 foot of coarse sandy clay loam; formed in beds of sandy loam and sandy clay loam.	0 to 29 29 to 41 41 to 52	Fine sandy loam to sandy loam. Coarse sandy clay loam Sandy loam
SbA	Savannah very fine sandy loam, 0 to 2 percent slopes.	1	½ foot of moderately well drained very fine sandy loam over 3⅓ feet of loam; formed in loam and sandy clay loam.	0 to 7 7 to 47+	Very fine sandy loam Loam
ScA ScB	Scranton loamy fine sand, 0 to 2 percent slopes. Scranton loamy fine sand, 2 to 5 percent slopes.	1	3 feet of somewhat poorly drained loamy sand over 1 foot or more of sand; formed in sand and loamy sand.	0 to 39 39 to 52+	Loamy fine sand Sand
SsB	St. Lucie sand, 0 to 5 percent slopes.	6	6 feet or more of excessively drained sand; formed in sand.	0 to 66	Sand
SuB2 SuC2 SuD2	Sunsweet fine sandy loam, 2 to 5 percent slopes, eroded. Sunsweet fine sandy loam, 5 to 8 percent slopes, eroded. Sunsweet fine sandy loam, 8 to 17 percent slopes, eroded.	2	¾ foot of fine sandy loam over 3⅓ feet of sandy clay and clay; formed in sandy clay loam, sandy clay, and clay.	0 to 9 9 to 50	Fine sandy loam Sandy clay, clay
TfA TfB TfB2 TfC TfC2	Tifton very fine sandy loam, 0 to 2 percent slopes. Tifton very fine sandy loam, 2 to 5 percent slopes. Tifton very fine sandy loam, 2 to 5 percent slopes, eroded. Tifton very fine sandy loam, 5 to 8 percent slopes. Tifton very fine sandy loam, 5 to 8 percent slopes, eroded.	3	1⅓ feet of very fine sandy loam over 4 feet of sandy clay loam; formed in sandy clay loam.	0 to 15 15 to 59 59 to 80	Very fine sandy loam Sandy clay loam Sandy clay loam
WaA WaB	Wahee silt loam, 0 to 2 percent slopes. Wahee silt loam, 2 to 5 percent slopes.	1	½ foot of silt loam and loam over over 4½ feet of silty clay loam and silty clay.	0 to 7 7 to 60+	Silt loam or loam Silty clay loam to silty clay or clay.

[1] Miscellaneous land types, except for Coastal beaches; undifferentiated mapping units; and complexes are not included in table.

estimated physical properties significant to engineering—Continued

Classification—Continued		Percentage passing sieve—			Permeability	Available water capacity	Reaction	Shrink-swell potential
Unified	AASHO	No. 4	No. 10	No. 200				
					Inches per hour	*Inches per inch of depth*		
SM	A-2-4	100	98-100	15-35	2. 0 to 10. 0	0. 05 to 0. 07	4. 5 to 5. 5	Low.
SM, SC, CH, or CL	A-2-4 or A-7-6	100	98-100	15-75	0 to 0. 2	0. 05 to 0. 08	4. 5 to 5. 0	Low to high.
ML	A-4	100	98-100	50-60	0. 8 to 2. 0	0. 07 to 0. 10	4. 5 to 5. 0	Low.
CL	A-6	100	98-100	50-55	0. 2 to 0. 8	0. 08 to 0. 12	4. 5 to 5. 0	Low.
CL	A-6 or A-7	100	98-100	45-70	0 to 0. 2	0. 08 to 0. 12	4. 5 to 5. 0	Moderate.
SM	A-2-4	100	98-100	15-35	2.0 to 10.0	0.08 to 0.10	1.5 to 5.0	Low.
SM-SC, SM, or SC	A-2-4 or A-6	100	98-100	20-50	0.8 to 2.0	0.10 to 0.12	4.5 to 5.0	Low to moderate.
SM-SC or SM	A-2-4 or A-4	100	98-100	25-50	2.0 to 10.0	0.07 to 0.10	4.5 to 5.0	Low to moderate.
ML or CL	A-4	95-100	100	50-65	0.8 to 2.0	0.10 to 0.15	5.1 to 5.5	Low.
ML-CL or CL	A-4 or A-6	90-98	100	50-70	0.2 to 2.0	0.12 to 0.20	5.1 to 5.5	Moderate.
ML-CL or CL	A-4, A-6	95-98	100	50-60	0.2 to 0.8	0.10 to 0.20	5.1 to 5.5	Moderate.
SM	A-2-4 or A-4	100	100	20-45	2.0 to 10.0	0.05 to 0.10	5.1 to 5.5	Low.
SM, SM-SC, or CL	A-2-4, A-4 or A-6.	100	100	20-55	0.8 to 2.0	0.08 to 0.12	5.1 to 5.5	Low to moderate.
SM, SM-SC, or ML-CL.	A-2-4 or A-4	100	100	35-65	0.8 to 2.0	0.07 to 0.10	5.1 to 5.5	Low.
ML or SM	A-4	100	100	45-65	2.0 to 10.0	0.08 to 0.15	4.5 to 5.0	Low.
CL, SC or ML-CL	A-6 or A-4	100	100	45-65	0.2 to 0.8	0.12 to 0.20	4.5 to 5.0	Moderate.
SM	A-2-4, A-3	100	100	5-20	2. 0 to 10. 0	0. 07 to 0. 10	4. 5 to 5. 5	Low.
SM	A-2-4, A-3	100	100	5-15	10. 0+	0. 05 to 0. 07	4. 5 to 5. 0	Low.
SP	A-3	100	100	0-5	10. 0+	0. 03 to 0. 04	4. 5 to 5. 5	Low.
SM or ML-CL	A-4	90-100	85-99	40-60	2. 0 to 10. 0	0. 07 to 0. 10	4. 5 to 5. 5	Low.
SC or CH	A-6 or A-7	70-100	55-99	45-70	0 to 0. 8	0. 07 to 0. 10	4. 5 to 5. 0	Moderate to high.
SM or ML-CL	A-4	85-100	85-100	45-60	2. 0 to 10. 0	0. 07 to 0. 10	4. 5 to 5. 0	Low.
SM-SC or CL	A-4 or A-6	70-95	75-90	40-70	0. 8 to 2. 0	0. 12 to 0. 15	4. 5 to 5. 0	Low to moderate.
SM-SC	A-2-4 or A-6	70-100	50-100	30-70	0. 2 to 2. 0	0. 08 to 0. 12	4. 5 to 5. 0	Low to moderate.
ML	A-4	98	98-100	55-65	0. 8 to 2. 0	0. 10 to 0. 15	4. 5 to 5. 0	Moderate.
CL, CH	A-6, A-7	100	100	65-75	0 to 0. 8	0. 10 to 0. 12	4. 5 to 5. 0	Moderate to high.

[2] All parent material is unconsolidated and of Coastal Plain origin. [3] Variable.

TABLE 10.—*Engineering*

[Dashes indicate information is not

Soil series and map symbol [1]	Suitability of soil material for—				Suitability as source of—		Features affecting vertical alinement for highways
	Grading in wet weather	Road subgrade	Road fill	Fields for septic tanks	Topsoil [2]	Sand	Material
Bowie (BoB, BoB2, BoC, BoD).	Fair for upper 3 feet; poor below.	Fair for upper 3 feet; poor below.	Fair	Fair	Good	Not suitable	Plastic clay at 3 feet.
Bowie, thin solum (BtB, BtC).	Fair for upper 2 feet; poor below.	Fair for upper 2 feet; poor below.	Fair	Poor	Fair	Not suitable	Plastic clay at 2 feet.
Cahaba (CaB)	Good	Fair	Fair	Good	Good	Not suitable	----------
Carnegie (CgA, CgB, CgB2, CgC, CgC2, CgD, CgD2).	Fair	Fair	Fair	Fair	Good	Not suitable	----------
Coastal beaches (Co)	Good	Poor	Poor	Good	Not suitable.	Poorly graded fine sands.	Deep unstable sand
Cuthbert (CtB, CtC, CtD, CtE).	Poor	Poor	Poor	Poor	Poor	Not suitable	Sliding or sloughing of slopes.
Eustis (EuB, EuC, EuD)	Good	Fair	Fair	Good	Not suitable.	Poorly graded sands with some fines.	Erodible, unstable sand.
Faceville (FaA, FaB, FaB2, FaC, FaC2).	Fair to poor.	Fair	Fair to good.	Fair	Good	Not suitable	----------
Flint (FsB)	Poor	Poor	Poor	Poor	Poor	Not suitable	Plastic clay at 2 feet.
Goldsboro (GoA, GoB, GoC)	Fair	Fair	Fair	Fair	Good	Not suitable	----------
Grady (Gr)	Poor	Poor	Poor	Poor	Poor	Not suitable	Clay at 1 foot

See footnotes at end of table.

interpretation of soils

applicable or there are no adverse features]

Features affecting vertical alinement for highways—Continued	Soil features affecting agricultural structures					
	Farm ponds		Drainage structures [3]	Irrigation structures	Terraces and diversions [4]	Waterways [5]
Drainage	Reservoir areas [6]	Embankments				
High water table	Slow seepage	Moderate strength and stability; moderate to slow permeability.	Not needed	Moderate to low moisture-holding capacity and slow intake rate.	Degree of slope; hazard of erosion.	Length and degree of slope; present erosion.
High water table	Slow seepage	Low to moderate strength and stability; moderate to slow permeability.	Not needed	Low moisture-holding capacity and slow intake rate.	Degree of slope; hazard of erosion; slow permeability.	Length and degree of slope; present erosion.
----------	Moderate seepage.	High strength and stability; moderate permeability.[7]	Not needed	Moderate to low moisture-holding capacity; medium intake rate.	Degree of slope; hazard of erosion.	Length and degree of slope; present erosion.
----------	Moderate seepage.	High strength and stability; moderate permeability.	Not needed	Moderate moisture-holding capacity; slow intake rate.	Degree of slope; hazard of erosion.	Length and degree of slope; present erosion.
Very rapid internal movement of water.	Not suitable	Not suitable	Not needed	Not suitable	Nonagricultural.	Nonagricultural.
High water table	Slow seepage	Moderate to low strength and stability; slow permeability.	Not needed	Low moisture-holding capacity; slow intake rate.	Degree of slope; hazard of erosion; slow permeability and intake rate.	Length and degree of slope; present erosion.
----------	Excessive seepage; ordinarily not suitable.	High strength; low stability; rapid permeability.	Not needed	Low or very low moisture-holding capacity; rapid intake rate.	Usually not terraced, because soils are unstable.	Unstable soils; serious hazard of erosion.
----------	Moderate seepage.	Moderate strength and stability; moderate to slow permeability.	Not needed	Moderate to low moisture-holding capacity; slow intake rate.	Degree of slope; hazard of erosion.	Length and degree of slope; present erosion.
High water table	Slow seepage	Low strength and stability; slow or very slow permeability.[7]	Slow to very slow permeability.	Moderate to low moisture-holding capacity; very slow intake rate.	Not needed	Not needed.
Seasonal high water table.	Moderate seepage.	Moderate strength and stability; moderate to slow permeability.	Moderate to slow permeability; seepage.	Moderate to low moisture-holding capacity; medium intake rate.	Degree of slope; hazard of erosion.	Length and degree of slope; present erosion.
High water table	No seepage; suited to dug reservoirs.	Low strength and stability; very slow permeability.[7]	Very slow permeability, inadequate outlets.	Moderate to low moisture-holding capacity; very slow intake rate.	Not needed	Not needed.

TABLE 10.—*Engineering*

Soil series and map symbol [1]	Suitability of soil material for—				Suitability as source of—		Features affecting vertical alinement for highways
	Grading in wet weather	Road subgrade	Road fill	Fields for septic tanks	Topsoil [2]	Sand	Material
Greenville (GvA, GvB, GvB2, GvC2).	Fair to poor	Fair	Fair	Good	Good	Not suitable	
Irvington (IrA, IrB)	Fair	Fair	Fair	Fair	Good	Not suitable	
Iuka (Iu)	Fair	Fair	Fair	Poor	Fair	Not suitable	
Izagora (IzA, IzB)	Fair to poor	Fair	Fair	Fair	Good	Not suitable	
Kalmia (KaA, KaB)	Fair to good.	Fair to good.	Fair to good.	Good	Good	Substratum fair.	
Klej (KlB, KlC)	Fair	Poor	Fair	Good	Fair	Poorly graded sands and some fines.	Unstable substratum of loamy fine sand.
Lakeland (LaB, LaC, LaD, LaE).	Good	Fair	Fair	Good	Poor	Poorly graded sands and some fines.	
Lakewood (LkB)	Good	Poor	Poor	Good	Poor	Good	Unstable sand
Leaf (Lm)	Poor	Poor	Poor	Poor	Poor	Not suitable	Plastic clay close to surface.
Leon (Ls)	Good	Poor	Poor	Poor	Poor	Wet sand containing layers that are high in content of organic matter.	Unstable sand
Lynchburg (LyA, LyB, LyC)	Fair to good.	Fair	Fair to good.	Fair	Good	Not suitable	

See footnotes at end of table.

interpretation of soils—Continued

Features affecting vertical alinement for highways—Continued	Soil features affecting agricultural structures					
	Farm ponds		Drainage structures [3]	Irrigation structures	Terraces and diversions [4]	Waterways [5]
Drainage	Reservoir areas [6]	Embankments				
------------------	Moderate seepage.	Moderate to high strength and stability; moderate permeability.	Not needed-----	Moderate to low moisture-holding capacity; medium intake rate.	Degree of slope; hazard of erosion.	Length and degree of slope; present erosion.
Seasonal high water table.	Slow seepage--	Moderate to low strength and stability; moderate to slow permeability.[7]	Slow permeability.	Moderate moisture-holding capacity; slow intake rate.	Degree of slope; hazard of erosion.	Length and degree of slope; present erosion.
Subject to flooding.	Slow or very slow seepage.	Low strength and stability; slow permeability.[7]	Contains wet areas; slow permeability; subject to flooding.	Moderate moisture-holding capacity; slow intake rate.	Not needed-----	Not needed.
High water table for short periods.	Slow seepage--	Low strength and stability; moderately slow permeability.[7]	Moderate to slow permeability.	Low to moderate moisture-holding capacity; medium intake rate.	Not needed-----	Not needed.
High water table--	Moderate to excessive seepage.	Moderate to high strength and stability; moderate permeability.[7]	Not needed-----	Low to moderate moisture-holding capacity; medium intake rate.	Degree of slope; hazard of erosion.	Length and degree of slope; present erosion.
Seepage in wet weather; high water table.	Slow seepage--	Low to moderate strength; low stability; moderately slow permeability.	Seasonal high water table; seepage.	Low moisture-holding capacity; rapid intake rate.	Usually not terraced, because soils are unstable.	Unstable soil conditions; serious hazard of erosion.
------------------	Excessive seepage; ordinarily not suitable.	Moderate strength; low stability; rapid permeability.	Not needed-----	Low or very low moisture-holding capacity; rapid intake rate.	Usually not terraced, because soils are unstable.	Unstable soil conditions; serious hazard of erosion.
------------------	Not suitable--	Not suitable------	Not needed-----	Very low moisture-holding capacity; rapid intake rate.	Not needed-----	Not needed.
High water table--	Little or no seepage.	Low strength and stability; very slow permeability.[7]	High water table; very slow permeability.	Moderate to low moisture-holding capacity; slow intake rate.	Not needed-----	Not needed.
High water table--	Slow seepage--	Low strength and stability; slow permeability.[7]	High water table; slow to rapid permeability; unstable sand.	Very low moisture-holding capacity; rapid intake rate.	Not needed-----	Not needed.
High water table--	Slow seepage--	Moderate strength and stability; slow permeability.	Seasonal high water table; seepage; moderate permeability.	Low to moderate moisture-holding capacity; medium intake rate.	Degree of slope; hazard of erosion.	Length and degree of slope; present erosion.

TABLE 10.—*Engineering*

Soil series and map symbol [1]	Suitability of soil material for—				Suitability as source of—		Features affecting vertical alinement for highways
	Grading in wet weather	Road subgrade	Road fill	Fields for septic tanks	Topsoil [2]	Sand	Material
Magnolia (MgA, MgB, MgB2, MgC2).	Fair to poor.	Fair	Fair	Good	Good	Not suitable	
Mantachie (Mn)	Poor	Poor	Poor	Poor	Fair	Not suitable	Plastic clay close to surface.
Marlboro (MrA, MrB, MrB2)	Fair to poor.	Fair	Fair	Fair	Good	Not suitable	
Myatt (My)	Fair	Fair	Fair	Poor	Poor	Not suitable	
Norfolk (NoA, NoB, NoB2, NoC).	Poor to good.	Poor to good.	Poor to good.	Good	Good	Not suitable	
Okenee (Ok)	Poor	Poor	Poor	Poor	Good	Not suitable	High content of organic matter.
Orangeburg (OrA, OrB, OrB2, OrC, OrD2).	Fair	Fair	Fair	Good	Good	Not suitable	
Plummer (PmB, PmC)	Poor below 52 inches; good above.	Poor below 52 inches; good above.	Poor below 52 inches; good above.	Poor	Poor	Wet, poorly graded loamy sand.	Variable
Rains (RaA, RaB, RaC)	Poor	Poor	Poor	Poor	Poor	Not suitable	Variable
Red Bay (RbA, RbB)	Good	Good	Good	Good	Good	Sand and gravel in places.	
Robertsdale (Rr)	Fair	Fair	Fair	Poor	Good	Not suitable	

See footnotes at end of table.

interpretation of soils—Continued

Features affecting vertical alinement for highways—Continued	Soil features affecting agricultural structures						
	Farm ponds		Drainage structures [3]	Irrigation structures	Terraces and diversions [4]	Waterways [5]
Drainage	Reservoir areas [6]	Embankments				
----------------	Moderate seepage.	Moderate to high strength and stability; moderate to moderately slow permeability.	Not needed-----	Moderate moisture-holding capacity; slow intake rate.	Degree of slope; hazard of erosion.	Length and degree of slope; present erosion.
Subject to flooding; high water table.	Slow seepage--	Low strength and stability; slow or very slow permeability.[7]	High water table; slow or very slow permeability; subject to flooding.	Moderate to high moisture-holding capacity; slow intake rate.	Not needed-----	Not needed.
----------------	Moderate seepage.	Moderate strength and stability; moderate permeability.[7]	Not needed-----	Moderate to high moisture-holding capacity; slow intake rate.	Degree of slope; hazard of erosion.	Length and degree of slope; present erosion.
High water table--	Little or no seepage.	Low to moderate strength and stability; very slow permeability.[7]	High water table; slow permeability.	Low moisture-holding capacity; slow intake rate.	Not needed-----	Not needed.
High water table--	Moderate seepage.	Moderate strength and stability; moderate permeability.	Not needed-----	Moderate to low moisture-holding capacity; medium intake rate.	Degree of slope; hazard of erosion.	Length and degree of slope; present erosion.
High water table--	Little or no seepage.	Not suitable [7]-----	High water table; slow to moderate permeability.	Moderate moisture-holding capacity; slow intake rate.	Not needed-----	Not needed.
----------------	Moderate to excessive seepage.	High strength and stability; moderate permeability.	Not needed-----	Moderate to low moisture-holding capacity; medium intake rate.	Degree of slope; hazard of erosion.	Length and degree of slope; present erosion.
High water table--	Slow seepage--	Low strength and stability; slow or very slow permeability.	High water table; rapid permeability; unstable sands; seepage.	Very low moisture-holding capacity; slow intake rate.	Not needed-----	Not needed.
High water table--	Slow seepage--	Moderate strength and stability.	High water table; slow permeability; seepage.	Low to moderate moisture-holding capacity; slow intake rate.	Not needed-----	Not needed.
----------------	Moderate to excessive seepage.	High strength and stability; moderate permeability.	Not needed-----	Low to moderate moisture-holding capacity; medium intake rate.	Degree of slope; hazard of erosion.	Length and degree of slope; present erosion.
High water table--	Slow seepage--	Moderate strength and stability; slow permeability.[7]	Slow permeability; weak fragipan.	Moderate to high moisture-holding capacity; slow intake rate.	Not needed-----	Not needed.

676-830—64——7

TABLE 10.—*Engineering*

Soil series and map symbol [1]	Suitability of soil material for— Grading in wet weather	Road subgrade	Road fill	Fields for septic tanks	Suitability as source of— Topsoil [2]	Sand	Features affecting vertical alinement for highways: Material
Ruston (RuA, RuB, RuB2, RuC, RuC2, RuD).	Good	Good	Good	Good	Good	Not suitable	
Savannah (SbA)	Fair to poor.	Fair	Fair	Fair	Good	Not suitable	
Scranton (ScA, ScB)	Good	Poor to good.	Poor to good.	Poor	Fair	Wet, poorly graded loamy sand.	
St. Lucie (SsB)	Good	Poor	Poor	Good	Not suitable.	Good	Unstable sand
Sunsweet (SuB2, SuC2, SuD2)	Fair	Fair	Fair	Poor	Fair	Not suitable	
Tifton (TfA, TfB, TfB2, TfC, TfC2).	Fair	Fair	Fair	Fair	Good	Not suitable	
Wahee (WaA, WaB)	Poor	Poor	Poor	Poor	Fair	Not suitable	Plastic clay close to surface.

[1] Except for Coastal beaches, miscellaneous land types, undifferentiated mapping units, and complexes are not included in table.
[2] Rating applies to surface layer only.
[3] Features that affect drainage structures are shown only for the soils that need drainage.
[4] If used for cultivated crops, soils that have slopes of 2 to 8 percent need terraces. The type of terrace, distance between terraces, and the difficulty of constructing the terrace depend on the features described in this column; they vary because of differences in the degree of slope of various soils in a series. Soils having slopes of more than 8 percent are generally not cultivated. No features are listed for soils that have slopes of 0 to 2 percent.

interpretation of soils—Continued

Features affecting vertical alinement for highways—Continued	Soil features affecting agricultural structures					
	Farm ponds		Drainage structures [3]	Irrigation structures	Terraces and diversions [4]	Waterways [5]
Drainage	Reservoir areas [6]	Embankments				
------------------	Moderate seepage.	High strength and stability; moderate permeability.	Not needed	Moderate to low moisture-holding capacity; medium intake rate.	Degree of slope; hazard of erosion.	Length and degree of slope; present erosion.
High water table	Slow seepage	Moderate strength and stability; slow permeability.[7]	Slow permeability; seasonal high water table; weak fragipan.	Moderate to high moisture-holding capacity; slow intake rate.	Not needed	Not needed.
High water table	Slow seepage	Low strength and stability; rapid permeability.[7]	High water table; rapid permeability; seepage.	Low moisture-holding capacity; rapid intake rate.	Usually not terraced, because soils are unstable.	Soils are uustable; severe hazard of erosion.
------------------	Not suitable	Not suitable	Not needed	Very low moisture-holding capacity; rapid intake rate.	Not needed	Not needed.
High water table	Slow seepage	Low strength and stability; slow to very slow permeability.	Not needed	Low moisture-holding capacity; slow intake rate.	Degree of slope; hazard of erosion; slow or very slow permeability; slow intake rate.	Length and degree of slope; present erosion.
High water table	Moderate seepage.	Moderate strength and stability; moderate to moderately slow permeability.	Not needed	Moderate moisture-holding capacity; medium intake rate.	Degree of slope; hazard of erosion.	Length and degree of slope; present erosion.
High water table	Slow seepage	Low strength and stability; slow or very slow permeability.[7]	High water table; slow or very slow permeability.	Moderate moisture-holding capacity; slow intake rate.	Not needed	Not needed.

[5] The type of vegetation, the amount of shaping needed, and the width of waterways depend on the length and degree of slope and on the degree of erosion of the different soils in a series.

[6] Soils that have moderate and excessive seepage are not well suited to reservoirs unless there are springs or seepage areas above the ponded areas to supply water to the reservoir. Soils that have little or no seepage are probably the best sites for reservoirs if other features are favorable.

[7] These soils have slopes of 5 percent or less and are generally not suitable for an embankment. They may be suitable, however, for sites for dug ponds if other soils features are favorable.

TABLE 11.—*Engineering test data* [1] *for*

Soil name and location	Parent material	Alabama Report No.	Depth	Horizon	Mechanical analysis [2]: Shrinkage factors: Limit	Shrinkage factors: Ratio	Shrinkage factors: Volumetric change
			Inches				*Percent*
Bowie fine sandy loam: NW¼SE¼ sec. 26, T. 4 S., R. 6 E. (Modal.)[6]	Coastal Plain sediments.	2273	2–8	A_2	16	1.83	6
		2463	12–23	B_2	16	1.83	9
		2444	36–77+	C_1	21	1.73	18
NW¼NE¼SE¼ sec. 13, T. 3 S., R. 4 E. (More sandy texture than that in modal profile.)	Coastal Plain sediments.	2455	0–2	A_1	----	----	----
		2370	14–34	B_2	14	1.87	5
		2442	42–66+	C	18	1.77	14
SE¼SW¼SE¼ sec. 13, T. 3 S., R. 4 E. (Sandy C horizon.)	Coastal Plain sediments.	2431	2–7	A_2	----	----	----
		2371	11–23	B_2	18	1.75	11
		2397	39–66+	C_2	19	1.75	18
Cuthbert fine sandy loam: SE¼SE¼ sec. 33, T. 3 N., R. 4 E. (Modal.)	Coastal Plain sediments.	2391	0–3	A_1	18	1.63	0
		2443	9–18	B_2	16	1.77	16
		2402	30–58	C_1	14	1.90	25
SE¼SW¼SE¼ sec. 13, T. 3 S., R. 4 E. (More sandy C horizon than that in modal profile.)	Coastal Plain sediments.	2433	0–3	A_1	23	1.65	0
		2469	10–38	C_1	23	1.63	20
		2460	50–66	C_3	17	1.82	12
SE¼SW¼SW¼ sec. 21, T. 2 S., R. 4 E. (Ironstones in A and B horizons.)	Coastal Plain sediments.	2410	0–4	A_1	----	----	----
		2465	21–43	C_2	17	1.78	1
		2382	43–72+	D	15	1.85	24
Goldsboro sandy loam: SW¼NW¼ sec. 33, T. 6 S., R. 5 E. (Modal.)	Coastal Plain sediments.	2450	0–6	A_1	----	----	----
		2396	17–31	B_2	19	1.74	0
		2378	60–100+	C	21	1.71	2
Goldsboro very fine sandy loam: SE¼SE¼ sec. 26, T. 1 N., R. 2 E. (Clayey texture.)	Coastal Plain sediments.	2426	0–6	A_p	18	1.69	0
		2376	11–31	B_2	14	1.90	1
		2449	36–63+	C	15	1.87	12
Goldsboro fine sandy loam: NW¼SW¼NW¼ sec. 21, T. 7 S., R. 6 E. (More sandy texture than that in profile of Goldsboro very fine sandy loam.)	Coastal Plain sediments.	2416	0–3	A_1	----	----	----
		2388	10–22	B_2	17	1.78	0
		2399	30–59+	C	----	----	----
Greenville loam: NE¼NE¼ sec. 21, T. 5 S., R. 4 E. (Modal.)	Coastal Plain sediments.	2461	0–4	A_p	28	1.54	6
		2383	17–72	B_{21}	20	1.71	6
		2372	72–100+	B_{22}	20	1.71	8
NW¼NW¼ sec. 18, T. 4 S., R. 3 E. (Clayey texture.)	Coastal Plain sediments.	2387	0–6	A_p	17	1.78	6
		2422	9–48	B_{21}	16	1.78	5
		2413	48–63+	B_{22}	15	1.83	13
Greenville sandy loam: NE¼NE¼SE¼ sec. 28, T. 5 S., R. 4 E.	Coastal Plain sediments.	2415	0–8	A_p	14	1.83	2
		2381	8–20	B_1	12	1.91	1
		2441	20–36	B_2	18	1.76	7
Irvington very fine sandy loam: NW¼SW¼NW¼ sec. 10, T. 2 S., R. 3 E. (Modal.)	Coastal Plain sediments.	2473	0–3	A_1	----	----	----
		2420	14–27	B_2	18	1.77	5
		2471	72–89+	C	22	1.71	9
NE¼SW¼NW¼ sec. 20, T. 3 S., R. 5 E. (More iron concretions and more sandy C horizon.)	Coastal Plain sediments.	2427	0–3	A_1	27	1.43	0
		2434	9–21	B_2	17	1.82	10
		2409	29–53	C	22	1.65	12
SE¼SW¼SE¼ sec. 8, T. 6 S., R. 4 E. (Nearly level.)	Coastal Plain sediments.	2428	0–6	A_p	16	1.73	10
		2448	6–23	B_{11g}	16	1.77	10
		2435	46–66	C_1	23	1.64	10

See footnotes at end of table.

soil samples taken from 35 soil profiles

Mechanical analysis [2]—Continued							Liquid limit	Plasticity index	Classification	
Percentage passing sieve [3]						Percentage smaller than 0.005 mm.[3]			AASHO [4]	Unified [5]
2-in.	1-in.	No. 4 (4.76 mm.)	No. 10 (2.0 mm.)	No. 40 (0.42 mm.)	No. 200 (0.074 mm.)					
--------	--------	100	99	94	36	20	20	1	A-4(0)	SM.
75	67	65	65	47	33	14	26	9	A-4(4)	CL.
100	99	98	96	94	80	50	42	18	A-7-6(12)	ML-CL.
--------	--------	--------	100	94	42	10	(7)	(7)	A-4(1)	SM.
--------	--------	100	99	94	49	23	22	7	A-4(3)	SM-SC.
--------	--------	100	99	95	52	29	32	11	A-6(4)	CL.
--------	--------	100	99	95	38	11	(7)	(7)	A-4(1)	SM.
--------	--------	100	99	96	61	41	31	9	A-4(5)	ML-CL.
--------	--------	100	99	98	78	49	43	19	A-7-6(12)	CL.
--------	--------	100	99	90	35	10	18	1	A-2-4(0)	SM.
--------	--------	100	99	98	64	45	38	16	A-6(8)	CL.
--------	--------	--------	--------	100	85	62	41	18	A-7-6(11)	CL.
--------	--------	100	99	95	51	19	23	2	A-4(3)	ML.
--------	--------	100	99	95	85	66	49	22	A-7-6(15)	ML-CL.
--------	--------	--------	100	99	62	38	32	10	A-4(5)	ML-CL.
--------	100	90	88	86	46	11	(7)	(7)	A-4(2)	SM.
--------	--------	100	99	98	46	27	25	10	A-4(2)	SC.
--------	--------	--------	100	99	96	71	42	23	A-7-6(14)	CL.
--------	--------	--------	100	95	39	21	(7)	(7)	A-4(1)	SM.
--------	--------	100	99	97	54	20	19	3	A-4(4)	ML.
--------	--------	100	99	93	42	24	28	6	A-4(1)	ML-CL.
--------	--------	100	99	93	50	16	18	2	A-4(3)	ML.
--------	--------	100	99	95	61	32	26	5	A-4(5)	ML-CL.
--------	--------	--------	100	94	52	25	23	7	A-4(3)	ML-CL.
--------	--------	--------	100	98	21	8	(7)	(7)	A-2-4(0)	SM.
--------	--------	100	99	97	22	11	17	1	A-2-4(0)	SM.
--------	--------	100	99	97	14	5	(7)	(7)	A-2-4(0)	SM.
--------	--------	--------	100	92	66	45	34	4	A-4(6)	ML.
--------	--------	100	99	88	51	39	31	10	A-4(3)	ML-CL.
--------	--------	100	99	87	46	34	30	10	A-4(2)	SC.
--------	--------	100	99	96	58	41	24	6	A-4(5)	ML-CL.
--------	--------	100	99	97	58	45	28	11	A-6(5)	CL.
--------	--------	--------	100	98	51	40	28	9	A-4(3)	CL.
--------	--------	--------	100	76	30	21	17	0	A-2-4(0)	SM.
--------	--------	100	99	77	37	24	21	4	A-4(0)	SM-SC.
--------	--------	100	99	78	40	28	23	3	A-4(1)	SM.
--------	--------	100	98	97	66	12	(7)	(7)	A-4(6)	ML.
--------	--------	100	99	96	67	28	25	4	A-4(6)	ML-CL.
--------	100	93	85	80	55	22	31	10	A-4(6)	ML-CL.
--------	100	86	78	72	44	13	29	4	A-4(2)	ML.
--------	100	94	71	67	47	23	24	6	A-4(6)	ML-CL.
--------	100	88	81	77	54	33	32	11	A-6(4)	CL.
--------	--------	100	99	97	50	27	23	6	A-4(3)	SM-SC.
--------	--------	100	99	94	51	31	22	6	A-4(3)	ML-CL.
--------	100	97	94	90	49	31	31	9	A-4(3)	ML-CL.

TABLE 11.—*Engineering test data* [1] *for*

Soil name and location	Parent material	Alabama Report No.	Depth	Horizon	Mechanical analysis [2]: Shrinkage factors: Limit	Shrinkage factors: Ratio	Shrinkage factors: Volumetric change
			Inches				*Percent*
Lakeland loamy fine sand: SW¼NW¼ sec. 9, T. 6 S., R. 3 E. (Modal.)	Coastal Plain sediments.	2408	0–8	A_1			
		2373	20–72	C			
		2457	72–84+	D	18	1.73	0
SW¼NW¼NW¼ sec. 22, T. 6 S., R. 4 E. (Very fine texture.)	Coastal Plain sediments.	2403	0–2	A_1			
		2414	8–18	C_1			
		2384	18–72+	C_2			
NW¼NW¼ sec. 13, T. 5 S., R. 6 E. (Coarser texture.)	Coastal Plain sediments.	2445	0–6	A_1			
		2476	12–48	C_1			
		2411	48–64+	C_2			
Marlboro very fine sandy loam: NE¼NW¼NE¼ sec. 9, T. 2 S., R. 3 E. (Modal.)	Coastal Plain sediments.	2453	0–4	A_1			
		2374	14–32	B_2	19	1.74	12
		2452	60–96	C	25	1.58	9
SW¼NW¼SW¼ sec. 9, T. 7 S., R 2 E. (Finer texture.)	Coastal Plain sediments.	2412	0–7	A_p			
		2369	16–41	B_2	16	1.82	13
		2436	59–70+	C_1	18	1.75	18
NW¼NW¼SW¼ sec. 33, T. 2 S., R. 2 E. (More sandy texture.)	Coastal Plain sediments.	2447	0–6	A_p	13	1.87	1
		2446	6–22	B_{21}	16	1.80	6
		2429	46–62+	C_1	14	1.85	16
Norfolk fine sandy loam: NW¼SE¼ sec. 9, T. 6 S., R. 3 E. (Modal.)	Coastal Plain sediments.	2404	0–6	A_p			
		2379	19–32	B_2	16	1.98	2
		2276	47–60	B_{3m}	23	1.60	2
		2458	61–88	C_1	21	1.66	8
		2386	88–97+	C_2	24	1.59	26
SW corner SW¼NW¼ sec. 20, T. 6 S., R. 3 E. (More sandy texture.)	Coastal Plain sediments.	2392	0–3	A_1			
		2377	16–28	B_{21}	12	1.93	3
		2474	55–67+	C	22	1.66	3
NW¼NW¼SE¼ sec. 8, T. 6 S., R. 4 E. (Finer texture.)	Coastal Plain sediments.	2375	0–8	A_p	16	1.80	6
		2417	8–30	B_2	19	1.76	0
		2423	55–70+	C_1	26	1.54	3
Plummer loamy sand: SE¼SE¼ sec. 4, T. 1 S., R. 4 E. (Modal.)	Coastal Plain sediments.	2439	0–4	A_1			
		2454	16–52	C_2			
		2464	52–64	D_1	14	1.88	7
		2466	64–96+	D_2	13	1.92	35
NE¼NW¼ sec. 2, T. 7 S., R. 4 E. (Finer texture.)	Coastal Plain sediments.	2395	0–4	A_1			
		2451	15–30	C_3			
		2472	36–42	D	17	1.79	0
NW¼NW¼SW¼ sec. 35, T. 7 S., R. 2 E. (More sandy texture.)	Coastal Plain sediments.	2470	0–6	A_1			
		2462	6–22	C_1			
		2405	22–46	C_2			
Rains fine sandy loam: NW¼SW¼ sec. 25, T. 5 S., R. 4 E. (Modal.)	Coastal Plain sediments.	2437	0–9	A_{1p}			
		2418	9–29	B_2	18	1.77	1
		2394	52–70+	D_2	20	1.74	12
SE¼SE¼SW¼ sec. 16, T. 4 S., R. 5 E. (Loam surface soil.)	Coastal Plain sediments.	2380	0–8	A_1	26	1.45	4
		2438	8–43	B_2	22	1.65	7
		2419	43–69+	C_1	16	1.78	8
Red Bay sandy loam: NW¼SW¼ sec. 33, T. 5 S., R. 3 E. (Modal.)	Coastal Plain sediments.	2390	0–7	A_p	17	1.72	0
		2421	21–33	B_{22}	16	1.85	6
		2385	50–80+	B_3	18	1.73	10

See footnotes at end of table.

soil samples taken from 35 soil profiles—Continued

Mechanical analysis [2]—Continued							Liquid limit	Plasticity index	Classification	
Percentage passing sieve [3]						Percentage smaller than 0.005 mm.[3]			AASHO [4]	Unified [5]
2-in.	1-in.	No. 4 (4.76 mm.)	No. 10 (2.0 mm.)	No. 40 (0.42 mm.)	No. 200 (0.074 mm.)					
------	------	------	100	81	16	9	(7)	(7)	A-2-4(0)	SM.
------	------	100	99	82	17	9	(7)	(7)	A-2-4(0)	SM.
------	------	------	100	79	19	14	20	3	A-2-4(0)	SM.
------	------	100	99	95	18	5	(7)	(7)	A-2-4(0)	SM.
------	------	------	100	94	12	5	(7)	(7)	A-2-4(0)	SM.
------	------	100	99	93	14	6	(7)	(7)	A-2-4(0)	SM.
------	------	------	100	55	18	6	(7)	(7)	A-2-4(0)	SM.
------	------	100	99	50	17	9	(7)	(7)	A-2-4(0)	SM.
------	100	98	88	35	9	4	(7)	(7)	A-1-b(0)	SM.
------	------	------	100	97	52	20	(7)	(7)	A-4(3)	ML.
------	------	100	99	97	60	37	29	7	A-4(5)	ML-CL.
------	------	------	100	96	56	37	38	12	A-6(5)	ML-CL.
------	------	------	100	97	62	20	(7)	(7)	A-4(5)	ML.
------	------	100	99	96	69	36	27	9	A-4(7)	CL.
------	------	100	99	95	62	39	40	19	A-6(9)	CL.
------	------	100	99	90	45	16	14	1	A-4(2)	SM.
------	------	100	99	92	57	33	23	7	A-4(5)	ML-CL.
------	------	100	99	87	46	28	28	10	A-4(2)	SC.
------	------	------	100	91	21	10	(7)	(7)	A-2-4(0)	SM.
------	------	100	99	92	34	22	19	2	A-2-4(0)	SM.
------	------	100	99	88	30	20	25	1	A-2-4(0)	SM.
------	100	90	87	81	39	27	32	11	A-6(2)	CL.
------	------	100	99	98	66	49	50	20	A-7-6(10)	ML-CL.
------	------	100	99	88	26	9	(7)	(7)	A-2-4(0)	SM.
------	------	100	99	87	20	15	15	1	A-2-4(0)	SM.
------	------	------	100	87	35	21	26	5	A-2-4(0)	SM-SC.
------	------	100	99	98	44	19	18	1	A-4(2)	SM.
------	------	100	99	97	46	24	19	4	A-4(2)	SM-SC.
------	------	100	99	94	44	19	29	4	A-4(2)	SM.
------	------	100	99	72	24	5	(7)	(7)	A-2-4(0)	SM.
------	------	------	100	74	26	6	(7)	(7)	A-2-4(0)	SM.
------	------	------	100	72	33	19	22	8	A-2-4(0)	SC.
------	------	100	99	90	73	58	46	24	A-7-6(15)	CL.
------	------	100	99	96	32	6	(7)	(7)	A-2-4(0)	SM.
------	------	------	100	97	29	10	(7)	(7)	A-2-4(0)	SM.
------	------	100	99	95	29	11	16	3	A-2-4(0)	SM.
------	------	100	99	71	15	7	(7)	(7)	A-2-4(0)	SM.
------	------	------	100	72	17	9	(7)	(7)	A-2-4(0)	SM.
------	------	------	100	68	14	10	(7)	(7)	A-2-4(0)	SM.
------	------	100	99	95	50	10	(7)	(7)	A-4(3)	ML.
------	------	------	100	96	52	18	19	1	A-4(3)	ML.
------	------	100	99	96	69	36	33	14	A-6(9)	CL.
------	------	100	99	97	56	32	32	4	A-4(4)	ML.
------	------	100	99	94	52	33	28	5	A-4(4)	ML-CL.
------	------	------	100	94	51	32	23	5	A-4(3)	ML-CL.
------	------	100	99	77	29	19	18	3	A-2-4(0)	SM.
------	------	100	99	75	33	26	22	5	A-2-4(0)	SM-SC.
------	------	100	99	79	37	30	29	8	A-4(0)	SM-SC.

TABLE 11.—*Engineering test data* [1] *for*

Soil name and location	Parent material	Alabama Report No.	Depth	Horizon	Mechanical analysis [2] Shrinkage factors: Limit	Ratio	Volumetric change
			Inches				*Percent*
NE corner NW¼NE¼NW¼ sec. 10, T. 6 S., R. 3 E. (More sandy texture.)	Coastal Plain sediments.	2467	0–10	A_p	-----	-----	-----
		2432	25–45	B_1	17	1. 79	0
		2430	45–64	B_2	16	1. 81	1
NE¼SE¼NE¼ sec. 22, T. 5 S., R. 2 E. (Fine texture.)	Coastal Plain sediments.	2407	0–8	A_p	14	1. 78	2
		2456	8–32	B_{21}	14	1. 83	11
		2393	32–56	B_{22}	24	1. 59	0
Tifton very fine sandy loam:							
SW¼NW¼ sec. 5, T. 6 S., R. 4 E. (Modal.)	Coastal Plain sediments.	2475	0–7	A_p	-----	-----	-----
		2459	15–35	B_2	15	1. 87	9
		2389	59–80+	C	27	1. 53	10
NW¼NW¼NE¼ sec. 8, T. 6 S., R. 4 E. (Finer texture.)	Coastal Plain sediments.	2400	0–6	A_p	-----	-----	-----
		2424	22–42	B_2	20	1. 69	4
		2425	42–62	B_3	22	1. 62	8
SW¼SW¼SE¼ sec. 28, T. 2 S., R. 3 E. (Clayey texture.)	Coastal Plain sediments.	2468	0–8	A_p	15	1. 79	1
		2406	14–32	B_2	18	1. 80	8
		2440	44–62+	C_1	24	1. 65	14

[1] Tests performed by the Alabama Highway Department in accordance with standard procedures of the American Association of State Highway Officials (AASHO).

[2] Mechanical analyses according to the American Association of State Highway Officials Designation T 88. Results by this procedure frequently may differ somewhat from results that would have been obtained by the soil survey procedure of the Soil Conservation Service (SCS). In the AASHO procedure, the fine material is analyzed by the hydrometer method and the various grain-size fractions are calculated on the basis of all the material, including that coarser than 2 millimeters in diameter. In the SCS soil survey procedure, the fine material is analyzed by the pipette method and the material coarser than 2 millimeters in diameter is excluded from calculations of grain-size fractions. The mechanical analyses used in this table are not suitable for use in naming the textural classes for soils.

Formation and Classification of Soils [8]

This section consists of two main parts. The first part discusses the five factors of soil formation and tells how these factors affect the formation of soils in Baldwin County. In the second part the soils in the county are classified in higher categories on the basis of their morphology.

Factors of Soil Formation

Soils are formed as the result of the interaction of climate, plant and animal life, parent material, relief, and time. These five factors act as destructional forces, as manifested in the reduction of the size of particles in the soil material. They also act as constructional forces, as manifested in the accumulation of organic matter and in the formation of clay minerals.

The relative importance of each factor differs from place to place, but the kind of soil that forms in any one place depends on the effects of all of these five factors. In extreme instances, one factor may dominate in the formation of a soil and be responsible for most of the properties of that soil. This occurs in many places where the parent material consists of sand. Quartz sand changes but little during the formation of a soil, and only faint horizons develop in a soil formed in quartz sand. A distinct profile, however, does form in quartz sand under some kinds of vegetation, where the water table is high and the topography is low and flat.

[8] By LELAND H. BURGESS, soil scientist.

Climate

The warm-temperate, nearly subtropical climate of Baldwin County is an important factor in the development of the soils. The effect of climate continues even after soil development is considerably advanced. Because the climate is fairly uniform throughout the county, however, it has not caused differences among the soils to the extent that the other factors have caused them.

The climate of Baldwin County is characterized by long, warm summers, short, mild winters, and a fairly high rainfall. As a result, a large part of the acreage in the county consists of soils that are low in fertility, strongly weathered, leached, and acid. The climate contributes to rapid chemical reactions and rather intense leaching of the soluble material in the soils. It is also conducive to the translocation of less soluble materials and colloidal materials, which are washed downward into the B horizon. The fine material is rapidly washed downard from the surface layer because of the large amount of rainfall. Therefore, the texture of the surface layer is generally sandy loam where erosion is not severe. Little of the quartz sand and gravel in the soil horizons is ever reduced to the colloidal state.

soil samples taken from 35 soil profiles—Continued

Mechanical analysis [2]—Continued							Liquid limit	Plasticity index	Classification	
Percentage passing sieve [3]						Percentage smaller than 0.005 mm.[3]			AASHO [4]	Unified [5]
2-in.	1-in.	No. 4 (4.76 mm.)	No. 10 (2.0 mm.)	No. 40 (0.42 mm.)	No. 200 (0.074 mm.)					
		100	99	90	17	9	(7)	(7)	A-2-4(0)	SM.
		100	99	89	23	14	14	2	A-2-4(0)	SM.
		100	99	89	30	23	19	3	A-2-4(0)	SM.
			100	87	31	18	15	3	A-2-4(0)	SM.
			100	90	46	17	29	13	A-6(3)	SC.
		100	99	91	46	32	24	4	A-4(2)	SM-SC.
	100	94	91	88	47	13	(7)	(7)	A-4(2)	SM.
	100	79	76	73	45	26	23	7	A-4(2)	SM-SC.
		100	99	93	58	32	38	12	A-6(5)	ML-CL.
		100	99	98	50	16	(7)	(7)	A-4(3)	SM.
	100	82	78	77	44	23	24	6	A-4(2)	SM-SC.
	100	74	54	53	30	15	30	6	A-2-4(0)	SM-SC.
	100	91	89	86	56	18	17	5	A-4(4)	ML-CL.
	100	95	89	87	66	36	31	13	A-6(7)	CL.
		100	99	94	70	43	39	12	A-6(8)	ML-CL.

[3] Based on total material. Laboratory test data corrected for amount discarded in field sampling.
[4] Based on Standard Specifications for Highway Materials and Methods of Sampling and Testing (Pt. 1, Ed. 7): The Classification of Soils and Soil-Aggregate Mixtures for Highway Construction Purposes, AASHO Designation M 145-49.
[5] Based on the Unified Soil Classification System, Tech. Memo. No. 3-357, v. 1, Waterways Experiment Station, Corps of Engineers, March 1953.
[6] About 25 percent of fragments larger than 3 inches in diameter were discarded in field sampling.
[7] Nonplastic.

Because the temperature is moderate to warm and rainfall is heavy, little organic matter accumulates in the soil. However, the soils that have been in grass or in meadow continuously for a number of years have some accumulation of organic matter in the topmost layers.

Plant and animal life

Living organisms are largely responsible for the constructive processes of soil development. Grasses and trees add organic matter to the soil material. The grasses generally take in calcium from the lower layers and return it to the surface layer. The amount of bases returned varies according to the different kinds of grass. The different kinds of trees also return varying amounts of bases. For example, the organic matter under a pine forest has a much lower content of bases than does that under a beech-maple forest. In some of the forested areas, a thin covering of leaf mold or forest debris is on the surface. In these areas the uppermost 2 to 3 inches of the A horizon contains enough organic matter to have a dark-gray or brownish-gray color. In the soils of the county as a whole, however, the accumulation of organic matter has been of little importance in the forming of different horizons.

Shallow-rooted plants, which have most of their roots in the surface layer, tend to reduce leaching in the upper part of the solum more than deep-rooted plants. For this reason, grasses generally reduce leaching more than trees, because the grasses take in more water from the surface layer and leave less to percolate downward to the lower horizons.

When the early settlers arrived in the area that is now Baldwin County, a dense forest covered the sandy uplands, the stream terraces, and the flood plains. On the sandy uplands longleaf pine, loblolly pine, post oak, blackjack oak, hickory, sweetgum, maple, beech, water oak, cottonwood, and sycamore were the most common trees. Some of the differences in native vegetation were caused mainly by differences in drainage; others were caused mainly by differences in the soils.

As agriculture developed in Baldwin County, man influenced the development of the soils. He cleared the forests, cultivated the soils, and drained the land. These activities affected the development of the soils and will continue to do so.

Organisms that decompose organic matter influence the formation of the soils. Different products are the result of different kinds of micro-organisms acting on organic matter and causing it to decompose. If decomposition is complete, the end products are the same, even though different kinds of micro-organisms acted on the organic material. The products found in the soil at any one time, however, are largely intermediate compounds. These compounds vary according to the kinds of organisms that are responsible for their presence.

The products that result from the growth of fungi are more soluble than those that result from the growth of bacteria. Therefore, conditions that are less favorable for

the growth of fungi than for the growth of bacteria may lead to the formation of more organic matter in the soil. This is because the more insoluble products of bacterial growth tend to stay in the soil. Among the factors that affect the kind and quantity of micro-organisms in the soil are the kinds of crops, the kinds and amounts of fertilizer that are used, and tilth.

Parent material

The parent material in which most of the soils of Baldwin County formed consists of sediments transported by streams that flow into the Gulf of Mexico. In some places, however, the waters of the Gulf of Mexico deposited sediments that were also a source of parent material. The sediments carried by streams were deposited in beds of unconsolidated sand and clay.

Sources of the parent material.—The parent material of the soils in Baldwin County comes from several sources. Part of it is from sediments deposited on beaches, flood plains, and terraces; part is from Hattiesburg clay; and part is from the Citronelle formation.

The deposits on beaches, flood plains, and terraces consist of marine sands and clays of Pleistocene age. They overlie the Citronelle formation in a strip about 15 miles wide along the coast. Deposits in estuaries and fans extend from the valleys of the Mobile and Tensaw Rivers and other large streams in the county. Some of the deposits of Pleistocene age, both marine and nonmarine, are in terraces. Others are along the rivers, where sediments are still being deposited on the first bottoms when the streams overflow.

Hattiesburg clay, another source of parent material for the soils of the county, is covered in most places, by the Citronelle formation, but it is exposed along watercourses or ravines that lead to waterways. The material in Hattiesburg clay is generally white, pink, and gray sand and clay. The soils formed in material from Hattiesburg clay are sometimes called Grand Gulf Clays.

The Citronelle formation, still another source of parent material, is predominantly sandy, but it contains thin layers of clay. The sands are crossbedded. They are generally red, but their color varies according to the extent that the sands are weathered. In some places the sands are mottled gray, purple, red, or yellow. Some deposits of gravel are in this formation.

Kinds of parent material in the county.—The parent material of the soils in Baldwin County is mainly of two kinds: (1) Material transported by water and laid down as alluvial deposits of unconsolidated sand, silt, or clay; and (2) residual material weathered from unconsolidated Coastal Plain material. The transported material is directly related to the material from which it was washed. The residual material is directly related to the underlying material.

The soils that formed in material transported by water are along most of the streams in the county. They occupy narrow first bottoms that are flooded from time to time. Each time the first bottoms are flooded, new sediments are laid down on the adjacent bottoms. The soils on these first bottoms have formed in alluvium that has a mixed lithology because it originated in areas consisting of many different kinds of soils. The alluvium varies greatly in texture and also in chemical and mineralogical composition.

Through the years, large streams, such as the Mobile and Tensaw Rivers, have meandered considerably. As a result, there are many areas in the county where streams once flowed but where the channel has now shifted to another area. The textural pattern of the soils along these old stream channels is the result of the way in which sediments were deposited on the flood plains and on areas that are now stream terraces.

Generally, when the streams overflowed, the floodwaters deposited sediments in a regular pattern. Sand and other coarse-textured material was deposited first, near the channel of the stream. In many places this coarse-textured material formed a natural levee, and slack water collected behind the levee. Finer textured sediments were deposited in the areas behind the levees.

Sometimes, during a flood, the channel of a stream changed its course and a slack-water area was formed adjacent to a sandy, natural levee. In such areas there is an abrupt change in texture from place to place; the texture ranges from silty clay or clay to sand. In some places subsequent floodwaters deposited fine-textured sediments on the sand and caused abrupt vertical changes in the profile.

The soils that formed in material weathered from the underlying material vary greatly in texture, structure, consistence, and color. That is because the underlying material varies greatly from place to place. In some places the parent material over which the soils formed is exceedingly resistant to change, and in other places it is readily altered. The heavy clays, for example, are resistant to alteration and retain the characteristics of the parent material for a long period of time. Sandy parent material, on the other hand, is changed rapidly into a sandy soil.

Over a long period, the general effect of the soil-forming processes has been to obliterate the differentiating influence of the parent material. Many different soil series may, in time, be formed from the same kind of parent material. It is possible to dig to a depth of 2 or 3 feet in the soils of many different series without finding anything to indicate the kind of parent material from which the soil formed. The characteristics that have caused the soils to differ in such areas are the result of the effect of plant and animal life, relief, climate, and time. The effects of the parent material, although important, are more important in young and in imperfectly drained soils than they are in older soils.

Relief

The relief of Baldwin County ranges from nearly level or gently sloping to steep. The flood plains in the western part of the county are nearly level, the marine terraces in the southern part are nearly level to gently sloping, and the hills in the northern part are steep. The elevation ranges from sea level along the coast to approximately 300 feet in the vicinity of Lottie.

Relief influences the formation of soils through its effect on drainage, runoff, and erosion. But, along with relief, the parent material is important. For example, most mature, or normal, soils developed where the relief is nearly level to gently sloping and the underlying material is permeable. However, soils that formed where relief was the same, but where the parent material is fine

TABLE 12.—*Mechanical analyses of several soils*

Soil	Horizon	Depth	Particles larger than 2.0 mm.	Very coarse sand	Coarse sand	Medium sand	Fine sand	Very fine sand	Silt	Clay
		Inches	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
Irvington fine sandy loam	A_p	0 to 8	2.0	0.2	1.3	7.1	31.8	19.9	29.2	10.5
	B_2	10 to 26	13.0	.3	1.2	6.7	29.4	17.5	22.1	22.8
	B_{3m}	26 to 48	16.0	.3	1.3	6.4	26.3	16.7	28.6	20.4
	C	48 to 60	13.0	1.0	3.0	8.6	25.5	14.5	16.5	30.9
Orangeburg fine sandy loam	A_1	0 to 9		.8	10.9	10.4	40.9	10.9	19.4	6.7
	A_3	9 to 12		1.0	12.2	12.0	34.2	7.2	18.4	14.9
	B_{22}	36 to 54		.9	12.9	11.8	26.9	4.5	9.3	33.7
Lakeland loamy fine sand	A_1	0 to 4		.9	13.1	14.9	41.6	12.1	14.6	2.8
	A_2	17 to 31		3.5	3.5	7.1	59.8	10.6	11.1	4.4
	D	59 to 70		1.2	7.9	8.7	42.1	9.8	18.8	11.5
Marlboro very fine sandy loam	A_p	0 to 8	4.0	.5	3.5	9.7	22.2	17.3	31.4	15.4
	B_2	18 to 20	2.0	1.4	4.2	9.4	20.5	15.0	23.5	26.0

textured and less permeable, generally have a claypan or fragipan.

Soils on steep slopes generally have weak horizon development. This is because of accelerated erosion, reduced percolation of water through the soil, and lack of water that is needed for the vigorous growth of plants, which affect the formation of soils. Soils on steep slopes normally have a thin solum.

The direction of slope affects the local climate. Soils on slopes that face south or southwest warm up faster in spring than those on slopes that face north. The soils on north-facing slopes, however, retain moisture longer because they are not exposed to the sun so long as those on south-facing slopes. Differences caused by the direction of slope are only slight in Baldwin County and are of minor importance in the development of soils.

Time

Although time is important in the formation of a soil, the effect of time depends on the effects of parent material, plant and animal life, climate, and relief. Some idea of the age of a soil can be obtained by observing the degree of horizon development, or horizonation. It is necessary, however, to evaluate simultaneously the effects of all the factors of soil formation to determine the direct effect of any one factor.

Geologically, most of the soils in Baldwin County are fairly young. The youngest are the alluvial soils along streams. These soils still frequently receive deposits of sediments and are going through what is called the cumulative soil-forming process. In most places these young soils have very faintly developed horizons.

The second youngest soils in the county are on stream terraces and developed in old alluvium. Many of these soils show a fairly strong degree of horizon development. Others, which have been influenced strongly by drainage, show weak horizonation, except for differences in the A and B horizons.

The degree of horizon development in some of the steeper sandy soils indicates that these soils are very young. On these steep soils erosion keeps pace with soil development and a normal profile rarely develops. This lack of horizon development emphasizes the importance of topography in the formation of a soil.

The soils of Baldwin County vary widely in degree of horizonation. Marked differences in texture occur between the A and B horizons in some profiles of the older soils and between the B and C horizons in others. Table 12 shows some of the differences in texture for a few soils in Baldwin County.

Many of the poorly drained soils in the county, though they have been in place for a long period of time, have weak horizonation. Most of them have had a reduction and transfer of iron. The gray colors in the deeper horizons indicate the reduction of iron oxides. Mottles of yellowish brown, strong brown, or yellowish red occur where the iron has not been completely reduced or removed from the profile. The weak horizons are more common among the younger soils of the stream terraces and first bottoms than among the older soils.

Classification of Soils

One of the main objectives of a soil survey is to describe the soils and to determine their relationship to agriculture. A second objective is to group the soils according to characteristics they have in common. This is necessary because there are so many different kinds of soils that it would be difficult to remember the characteristics of all of them. If the soils are placed in a few groups that have selected characteristics in common, the general nature of the soils can be remembered more easily.

The lower categories of classification, the soil series and soil type, are defined in the section "How Soils are Named, Mapped, and Classified." The highest category of classification is the soil order. The orders are made up of suborders, which, in turn, consist of great soil groups. Several soil series are in each great soil group.

In table 13 the soil series of Baldwin County are arranged in soil orders and great soil groups. Listed for each soil series are important factors that have affected the development of the soils, namely, parent material, range of slope, and drainage. Also given for each series is the degree of profile development. A profile for each soil series in the county is described in the section "Descrip-

TABLE 13.—*Classification of the soil series in higher categories and important factors that have contributed to the formation of the soils*

ZONAL

Great soil group and series	Parent material	Slope range	Drainage	Degree of profile development[1]
Red-Yellow Podzolic soils:				
Bowie	Acid sandy clay loam to clay on the Coastal Plain.	2 to 12 percent	Moderately good	Medium.
Cahaba	Old alluvium from acid sandy loam to sandy clay loam.	2 to 5 percent	Good	Medium.
Carnegie	Beds of sandy clay loam to sandy clay	0 to 12 percent	Good	Strong.
Cuthbert	Sand and clay	2 to 17 percent	Moderately good	Medium.
Faceville	Beds of loam, clay loam, and sandy clay loam.	0 to 8 percent	Good	Strong.
Flint (with some characteristics of Low-Humic Gley soils).	Old alluvium of silty clay and clay	0 to 5 percent	Moderately good	Strong.
Goldsboro (with some characteristics of Low-Humic Gley soils).	Sand loam and sandy clay loam	0 to 8 percent	Moderately good	Medium.
Irvington (with some characteristics of Planosols).	Clay loam and sandy clay loam	0 to 5 percent	Moderately good	Medium.
Izagora (with some characteristics of Low-Humic Gley soils).	Old alluvium of sand and sandy clay	0 to 5 percent	Moderately good	Strong.
Kalmia	Old alluvium of loamy sand to sandy clay	0 to 5 percent	Good	Medium.
Lynchburg (with some characteristics of Low-Humic Gley soils).	Sandy loam and sandy clay loam	0 to 8 percent	Somewhat poor	Weak.
Magnolia	Clay loam and sandy clay loam	0 to 8 percent	Good	Strong.
Marlboro	Sandy clay and loam	0 to 5 percent	Good	Strong.
Norfolk	Sandy loam and sandy clay loam	0 to 8 percent	Good	Medium.
Orangeburg	Sandy loam and sandy clay loam	0 to 12 percent	Good	Medium.
Ruston	Sandy loam and sandy clay loam	0 to 12 percent	Good	Medium.
Savannah (with some characteristics of Planosols).	Sandy loam to sandy clay loam	0 to 2 percent	Moderately good	Medium.
Sunsweet (with some characterististics of Regosols).	Sandy clay loam and clay	2 to 17 percent	Moderately good	Medium.
Tifton	Sandy clay loam	0 to 8 percent	Good	Strong.
Reddish-Brown Lateritic soils:				
Greenville	Clay loam	0 to 8 percent	Good	Medium.
Red Bay	Sandy loam and sandy clay loam	0 to 5 percent	Good	Medium.

INTRAZONAL

Great soil group and series	Parent material	Slope range	Drainage	Degree of profile development[1]
Low-Humic Gley soils:				
Bibb	Sandy loam and silt loam	0 to 2 percent	Poor	Weak.
Grady	Sandy clay loam to clay	0 to 2 percent	Poor	Weak.
Myatt	Old alluvium of loamy fine sand to clay	0 to 2 percent	Poor	Weak.
Plummer	Loamy sand and sand	0 to 12 percent	Poor	Weak.
Rains	Sandy loam to sandy clay loam	0 to 8 percent	Poor	Weak.
Humic Gley soils:				
Bayboro	Clay loam	0 to 2 percent	Very poor	Medium.
Hyde	Silty clay loam	0 to 2 percent	Very poor	Medium.
Okenee	Old alluvium of sandy loam and silty clay	0 to 2 percent	Very poor	Medium.
Scranton	Loamy fine sand and sand	0 to 5 percent	Somewhat poor	Weak.
Ground-Water Podzols:				
Leon	Sand	0 to 2 percent	Poor	Medium.
Planosols:				
Leaf	Old alluvium of clay and silty clay	0 to 2 percent	Poor	Medium.
Robertsdale	Clay loam and sandy clay loam	0 to 2 percent	Somewhat poor	Medium.
Wahee	Old alluvium of clay and silty clay loam	0 to 5 percent	Somewhat poor	Medium.

AZONAL

Great soil group and series	Parent material	Slope range	Drainage	Degree of profile development[1]
Alluvial soils:				
Iuka	Sandy and clayey alluvium	0 to 2 percent	Moderately good	Weak.
Mantachie (with some characteristics of Low-Humic Gley soils).	Alluvium of silty clay	0 to 2 percent	Somewhat poor	Weak.
Regosols:				
Eustis	Loamy fine sand and sand	0 to 12 percent	Excessive	Weak.
Klej (with some characteristics of Low-Humic Gley soils).	Loamy sand and loamy fine sand	0 to 8 percent	Moderately good	Weak.
Lakeland	Loamy sand and sand	0 to 17 percent	Excessive	Weak.
Lakewood (with some characteristics of Podzols).	Sand	0 to 5 percent	Excessive	Weak.
St. Lucie	Sand	0 to 5 percent	Excessive	Weak.

[1] Degree of development indicated by contrast in horizons.

tions of Soils." Laboratory characterization data for two Lakeland soils mapped in Baldwin County are given in Southern Cooperative Series Bulletin 61.[9] Similar data are also given for two Greenville soils that occur in Conecuh County and for two Norfolk soils and two Ruston soils that occur in Henry County.

Zonal soils

The zonal order consists of soils having well-developed profile characteristics that reflect the influence of the active factors of soil formation. The active factors are climate and plant and animal life, chiefly vegetation. The zonal soils in this county have an eluviated A horizon that is underlain by a finer textured illuviated B horizon. The B horizon, in most places, is uniform in color and is well oxidized. The C horizon varies considerably in texture, but it is generally coarser textured than the B horizon and finer textured than the A. On some of the soils that had a relatively thick A horizon before they were disturbed, accelerated erosion has removed all or part of the original sandy surface layer. Where all of the original surface layer has been lost through erosion, the former B horizon has become the surface layer and the normal profile is truncated. In this county the zonal soils are in two great soil groups, the Red-Yellow Podzolic and the Reddish-Brown Lateritic.

RED-YELLOW PODZOLIC SOILS

The Red-Yellow Podzolic great soil group consists of soils that are well drained and acid. These soils have a thin, organic A_0 horizon and an organic-mineral A_1 horizon. The A_1 horizon overlies a light-colored, leached A_2 horizon. The leached horizon is underlain by a clayey B horizon that is red, yellowish red, yellowish brown, or some other similar color. Coarse, reticulate streaks or mottles of red, yellow, brown, and light gray occur in the deep horizons where the parent material is thick. The parent material of the soils in this county is more or less siliceous.

The Red-Yellow Podzolic soils developed under deciduous, coniferous, or mixed forest in a warm, mesothermal to tropical, perhumid climate. In areas of these soils that have been cultivated, material from the A_0 and A_1 horizons is mixed into the surface layer. In many places erosion has removed all or nearly all of the original A horizon, and the former B horizon is now the surface layer. In these soils the clay fraction, in most places, is dominated by kaolinite but contains some free ferric oxides or hydroxides. In places there is also a small amount of aluminum hydroxide. Hydrous mica and montmorillonite dilute the clay fraction in some of the soils, but this is not typical. In soils that have the same kind of parent material, the reticulate streaks generally occur nearer the surface in a profile that has a yellowish-brown B horizon than in one that has a red B horizon. In a few Red-Yellow Podzolic soils, especially in the very sandy ones, the streaks are absent.

In Baldwin County soils of the Norfolk, Marlboro, Kalmia, Tifton, Bowie, and Cuthbert series are near the central concept for the yellow members of the Red-Yellow Podzolic great soil group. Soils of the Ruston, Magnolia, Carnegie, Orangeburg, Faceville, and Cahaba series are near the central concept for the red members.

The Goldsboro, Flint, Lynchburg, and Izagora soils are Red-Yellow Podzolic soils, but they have some characteristics of soils in the Low-Humic Gley great soil group; specifically, the lower part of their subsoil is mottled and gray. The Savannah, Irvington, and Sunsweet soils are also in this great soil group, but the Savannah and Irvington soils have a fragipan, which is typical of the Planosols, and the Sunsweet soils have some characteristics of Regosols.

The Norfolk soils have a coarser texture and a thicker A horizon than the Marlboro soils. They are similar to the Kalmia and Tifton soils, but they are on uplands rather than on streams terraces, and they lack the pebbles that are common in the Tifton soils. The Norfolk soils have upper horizons that are similar to those of the Bowie soils, but they lack the reticulate, red mottles that are typical in the lower part of the Bowie soil, and the Bowie soil is slightly compact in the lower part. The Cuthbert soils have a thinner solum and more variable texture than most of the soils in this group.

The Ruston and Magnolia soils lack the many small iron concretions that are in the Carnegie soils. The Ruston soils are coarser textured than the Magnolia and Carnegie soils. They have a texture that is similar to that of the Orangeburg soils, but they are less red. The Ruston soils are similar to the Faceville and Cahaba soils. They are coaser textured, however, than the Faceville soils and are on uplands rather than on stream terraces like the Cahaba soils.

REDDISH-BROWN LATERITIC SOILS

Reddish-Brown Lateritic soils have a dark reddish-brown surface layer, a red B horizon of friable sandy clay or sandy clay loam, and red or reticulately mottled, lateritic parent material. Laterization has dominated in the development of the soils, and there has been little or no podzolization. The laterization process is apparently more strictly a geological process than one of soil building. The material produced by laterization has a higher than normal content of iron and alumina and a low content of silicia. Laterite clays are less sticky than the other clays, and they are lower in their capacity to adsorb bases. The Reddish-Brown Lateritic soils lack the light-gray A_2 horizon, typical of podzolic morphology and characteristic of the Red-Yellow Podzolic soils. The Red-Yellow Podzolic soils are associated with the Reddish-Brown Lateritic soils, and they developed in siliceous parent material.

Soils of the Greenville and the Red Bay series are the only soils in this great soil group in Baldwin County. These soils have a similar color, but the Greenville soils are finer textured than the Red Bay.

Intrazonal soils

The intrazonal order consists of soils that have genetically related horizons, which reflect the dominant influence of a local factor of relief or parent material, over the effects of climate and plant and animal life.

The intrazonal soils of this county are in the Low-Humic Gley, Humic Gley, Ground-Water Podzol, and Planosol great soil groups.

[9] VIRGINIA AGRICULTURAL EXPERIMENT STATION. CERTAIN PROPERTIES OF SELECTED SOUTHEASTERN UNITED STATES SOILS AND MINERALOGICAL PROCEDURES FOR THEIR STUDY. Bul. 61, 146 pp., 1959.

LOW-HUMIC GLEY SOILS

Low-Humic Gley soils are somewhat poorly drained or poorly drained. They have a thin surface layer that is moderately high in content of organic matter. The surface layer is underlain by mottled gray and brown gley-like mineral horizons that have little textural differentiation. These soils range in texture from sand to clay and developed in parent material that varies widely in physical and chemical properties. In this county the soils of the Myatt, Rains, Plummer, Bibb, and Grady soils are in this great soil group. All of these soils are strongly acid.

The Myatt and Rains soils are similar in texture, structure, and consistence, but the Myatt soils formed on stream terraces, and in many places they are underlain by more sandy material than the Rains soils. The Plummer soils have a texture of loamy sand or sand throughout the profile. The Bibb soils are poorly drained and occur on first bottoms. The Grady soils are fine textured. They formed in depressions that resemble saucers; water stands in some of these depressions for long periods of time.

HUMIC GLEY SOILS

Humic Gley soils are poorly drained or very poorly drained. They have a thick, dark-colored A_1 horizon that is underlain by a mineral gleyed horizon. The Humic Gley soils have formed under swamp-forest or herbaceous marsh vegetation under a climate that is mostly humid or subhumid. These soils have a high content of organic matter. Most of them are strongly acid.

In this county the soils in this great soil group are those of the Scranton, Okenee, Hyde, and Bayboro series. The Scranton soils have a texture of loamy sand throughout the profile. The Okenee soils developed on stream terraces, and they have a surface layer of black silt loam and a subsoil of dark-gray silty clay loam. The Hyde and Bayboro soils have a surface layer of black loam and a subsoil of silty clay loam or clay loam. In this county the Hyde and Bayboro soils and Muck are so intricately mixed that it is impractical to map them separately.

GROUND-WATER PODZOLS

Ground-Water Podzols are an intrazonal group of soils that have a thin layer of organic matter over a layer of strongly leached, light-gray sand. The layer of sand is underlain by a black or dark grayish-brown, dense layer of organic material. These soils devloped in somewhat poorly drained or poorly drained, sandy material in a humid climate.

Leon sand is the only Ground-Water Podzol in Baldwin County. This soil has an A horizon that contains little organic matter and an A_2 horizon that is highly leached. The A_2 horizon is underlain by a dense layer, or pan, that is stained with organic matter. This underlying layer can be defined as a B horizon in which organic matter and mineral constituents have accumulated.

PLANOSOLS

Planosols have at least one layer of cementation or a high content of clay that is separated abruptly from an adjacent, sharply contrasting layer. In many places the cemented or compacted horizon lies beneath a moderately well develop or well developed B horizon that has a larger proportion of clay than the A horizon.

In this county the soils of the Planosol great soil group are the Leaf, Wahee, and Robertsdale soils. The Leaf and the Wahee soils have a subsoil that is high in clay. The Robertsdale soils have a fragipan; that is, a very compact horizon, rich in silt, sand, or both, but generally fairly low in clay. In many soils the fragipan keeps water and roots from penetrating. A fragipan has formed in many soils developed in material weathered from the underlying rocks, as well as in soils formed in transported parent material.

Azonal soils

The azonal order consists of soils that lack distinct, genetically related horizons, generally because of youth, resistant parent material, or steep topography. The azonal soils of the county are in the Alluvial and Regosol great soil groups.

ALLUVIAL SOILS

Alluvial soils developed in transported material that has been deposited fairly recently and has been modified little, if any, by the soil-forming processes. This transported and deposited material is called alluvium. All of the soils in the Alluvial great soil group that are on first bottoms are susceptible to periodic flooding by streams. New material is deposited by the floodwaters before the soils have had time to form genetically related horizons. Differences in parent material and in degree of drainage are the main features that distinguish these soils.

In Baldwin County the soils of the Iuka and Mantachie series are in this great soil group, but the Mantachie soils have some characteristics of soils in the Low-Humic Gley great soil group. The Iuka soils are moderately well drained, and the Mantachie soils are somewhat poorly drained.

REGOSOLS

Regosols are soils in which few or no clearly expressed soil characteristics have developed. They formed in deep, unconsolidated, mineral deposits.

In this county the Lakeland, Lakewood, Klej, Eustis, and St. Lucie soils are in this great soil group. The Lakewood soils, however, have some characteristics of Podzols—a thin, dark-colored, illuvial horizon containing humus and sesquioxides. The Klej soils have gray mottling in the lower part of the profile similar to that in soils of the Low-Humic Gley great soil group. The Eustis soils are similar to the Lakeland soils in texture, but they have a redder subsoil. The entire profile of the St. Lucie soils consists of white sand.

Glossary

Acidity, soil. The degree of acidity or alkalinity of a soil mass expressed in pH values, or in words, as follows:

	pH		*pH*
Extremely acid	Below 4.5	Neutral	6.6–7.3
Very strongly acid	4.5–5.0	Mildly alkaline	7.4–7.8
Strongly acid	5.1–5.5	Moderately alkaline	7.9–8.4
Medium acid	5.6–6.0	Strongly alkaline	8.5–9.0
Slightly acid	6.1–6.5	Very strongly alkaline	9.1 and higher

Aggregate (of soil). Many fine soil particles held in a single mass or cluster, such as a clod, crumb, block, or prism.

Alluvium. Soil material deposited on land by streams.

Available moisture. That part of the moisture in a soil that can be taken up by plants at rates significant to their growth.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter (0.000079 inch) in diameter. As a soil textural class, soil material that contains 40 percent or more of clay, less than 45 percent of sand, and less than 40 percent of silt.

Clay loam. Soil material that contains 27 to 40 percent of clay and 20 to 45 percent of sand.

Colluvium. Mixed deposits of soil material and rock fragments near the base of steep slopes. The deposits have accumulated through soil creep, slides, and local wash.

Complex, soil. An intricate mixture of areas of different kinds of soil that are too small to be shown separately on a map of the scale used and are, therefore, mapped as a unit. An example in Baldwin County is the St. Lucie-Leon-Muck complex.

Concretions. Hard grains, pellets, or nodules that consist of concentrations of compounds in the soil that cement the soil grains together. The composition of some concretions is unlike that of the surrounding soil.

Consistence, soil. The combination of properties of soil material that determine its resistance to crushing and its ability to be molded or changed in shape. Consistence depends mainly on the forces of attraction between soil particles. The following terms are used to describe consistence:

Brittle. When dry, breaks with a clean fracture or shatters to cleanly broken, hard fragments if struck a sharp blow.

Compact. Dense and firm but without cementation.

Firm. When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Friable. When moist, crushes easily under gentle to moderate pressure between thumb and forefinger and coheres when pressed together.

Soft. Weakly coherent and fragile; when dry, breaks to powder or individual grains under very slight pressure.

Hard. When dry, is moderately resistant to pressure; can be broken in the hands without difficulty but is barely breakable between thumb and forefinger.

Plastic. When wet, soil material forms a wirelike shape when rolled in the hands; can be deformed under moderate pressure.

Sticky. When wet, soil material adheres to both thumb and forefinger after pressure and tends to stretch somewhat and pull apart rather than to pull free.

Drainage classes. The following relative terms are used to express natural drainage:

Very poorly drained. Water is removed from the soil so slowly that the water table remains at or on the surface the greater part of the time.

Poorly drained. Water is removed so slowly that the soil remains wet for a large part of the time.

Somewhat poorly drained. Water is removed from the soil slowly enough to keep it wet for significant periods but not all of the time.

Moderately well drained. These soils have a slowly permeable layer within or immediately beneath the solum so that the profile is wet for a small, but significant part of the time.

Well drained. Water is removed from the soil readily but not rapidly.

Somewhat excessively drained. Water is removed from the soil rapidly so that only a small part is available to plants.

Excessively drained. Water is removed from the soil very rapidly. Excessively drained soils generally are shallow to bedrock and may be steep, very porous, or both.

Fragipan. Dense and brittle pan or layer in soils that are hard mainly because of extreme density or compaction rather than because of cementation or a high content of clay. Fragments that are removed are friable, but the material in place is so dense that roots cannot penetrate it, and water moves through it very slowly because of the small size of the pores.

Gleyed soil. A soil horizon in which waterlogging and lack of oxygen have caused the material to have a neutral gray color. The term "gleyed" is applied, as in "moderately gleyed soil," to soil horizons that have yellow and gray mottling caused by intermittent waterlogging.

Gravel. Coarse mineral particles ranging from 2 millimeters to 3 inches in diameter. Fine gravel ranges from 2 millimeters to ½ inch in diameter.

Great soil group. A broad group of soils that have internal characteristics in common. Examples in this county are the Red-Yellow Podzolic, Planosol, and Alluvial great soil groups.

Horizon, soil. A layer of soil, approximately parallel to the soil surface, with distinct characteristics produced by soil-forming processes.

A horizon. The master horizon consisting of (1) one or more mineral horizons of maximum organic accumulation; or (2) surface or subsurface horizons that are lighter in color than the underlying horizon and that have lost clay minerals, iron, and aluminum with resultant concentration of the more resistant minerals; or (3) horizons belonging to both of these categories.

B horizon. The master horizon of altered material characterized by (1) an accumulation of clay, iron, or aluminum, with accessory organic material; or (2) blocky or prismatic structure together with other characteristics, such as stronger colors, unlike those of the A horizons or the underlying horizons of nearly unchanged material; or (3) characteristics of both of these categories. Commonly, the lower limit of the B horizon corresponds to the lower limit of the solum.

C horizon. A layer of unconsolidated material, relatively little affected by the influence of organisms and, in chemical, physical, and mineral composition, presumed to be similar to the material from which at least a part of the overlying solum has developed.

D horizon. Any stratum underlying the C, or the B if no C is present, which is unlike the C, or unlike the material from which the solum has been formed.

Horizon boundaries. The characteristic widths of boundaries between soil horizons are described as (1) *abrupt*, if less than 1 inch wide; (2) *clear*, if about 1 inch to 2½ inches wide; (3) *gradual*, if 2½ to 5 inches wide; and (4) *diffuse*, if more than 5 inches wide. The topography of a boundary is expressed in relation to a horizontal plane as (1) *smooth*, if nearly a plane; (2) *wavy*, if pockets are wider than their depth; (3) *irregular*, if pockets are deeper than their width; and (4) *broken*, if parts of the horizon are unconnected with other parts. Example: gradual, wavy boundary.

Internal drainage. The movement of water through the soil profile. The rate of movement is affected by the texture of the surface layer and subsoil and by the height of the water table. Relative terms for expressing internal drainage are *very rapid*, *rapid*, *medium*, *slow*, *very slow*, and *none*.

Massive. Large uniform masses of cohesive soil that in places has poorly defined and irregular breakage, as in some of the fine-textured alluvial soils; structureless.

Mature soil. Any soil that has well-developed soil horizons and that is in near equilibrium with its present environment.

Morphology, soil. The physical constitution of the soil expressed in the kinds of horizons, their thickness and arrangements in the profile, and the texture, structure, consistence, porosity, and color of each horizon.

Mottles, soil. Contrasting color patches that vary in number and size. Descriptive terms for contrast are—*faint*, *distinct*, and *prominent;* for abundance, *few*, *common*, and *many;* and for size, *fine*, *medium*, and *coarse*. The size measurements are *fine*, commonly less than 5 millimeters (about 0.2 inch) in diameter along the greatest dimension; *medium*, commonly between 5 and 15 millimeters (about 0.2 to 0.6 inch) in diameter along the greatest dimension; and *coarse*, commonly more than 15 millimeters (about 0.6 inch) in diameter along the greatest dimension.

Pan. A hardened or cemented soil horizon, or layer. The soil material may be sandy or clayey and may be cemented by iron oxide, silica, calcium carbonate, or other substances.

Parent material. The unconsolidated mass of rock material or peat from which the soil profile develops. (See also Horizon, soil, C horizon; Substratum.)

Permeability, soil. That quality of a soil that enables water or air to move through the soil.

Phase, soil. A subdivision of the soil type that is made generally because of differences in relief, stoniness, accelerated erosion, or other external characteristics.

Poorly graded (engineering). A term used to indicate that a soil consists of particles chiefly of the same or of very nearly the same size or diameter; having a narrow range of particle size and, thus, poor grain-size distribution. Such a soil can be increased in density only slightly by compaction.

Profile, soil. A vertical section of the soil through all of its horizons and extending into the parent material.

Relief. The elevations or inequalities of a land surface, considered collectively.

Sand. Individual rock or mineral fragments that have diameters ranging from 0.05 millimeter (0.002 inch) to 2.0 millimeters (0.079 inch). As a soil textural class, soil material that contains 85 percent or more of sand and not more than 10 percent of clay.

Sandy clay. Soil material that contains 35 percent or more of clay and 45 percent or more of sand.

Sandy clay loam. Soil material that contains 20 to 35 percent clay, less than 28 percent silt, and 45 percent or more of sand.

Silt. Individual mineral particles of soil material that range from 0.05 millimeter (0.002 inch) to 0.002 millimeter (0.000079 inch) in diameter. As a textural class, soil material that contains 80 percent or more of silt and less than 12 percent of clay. Also, sediments deposited from water in which the individual grains are approximately the size of silt, although the term is sometimes applied loosely to sediments that contain a fairly large amount of sand and clay.

Silt loam. Soil material that contains 50 percent or more of silt and 12 to 27 percent of clay or 50 to 80 percent of silt and less than 12 percent of clay.

Silty clay. Soil material that contains 40 percent or more of clay and 40 percent or more of silt.

Single-grain soil. A structureless soil in which each particle exists separately, as in dune sand.

Solum. The upper part of a soil profile, above the parent material, in which the processes of soil formation are active. The solum in mature soils includes the A and B horizons. In most places the characteristics of the material in these horizons are quite unlike those of the underlying parent material. (See also Horizon, soil, A horizon, B horizon.)

Structure, soil. The aggregates in which individual soil particles are arranged. It may refer to their natural arrangement in the soil when in place or when disturbed. Soil structure is classified according to grade, class, and type.

Grade. Distinctness of aggregation; expresses the differential between cohesion within aggregates and adhesion between aggregates. Terms: Structureless (single grain or massive), weak, moderate, and strong.

Class. Size of aggregates. Terms: Very fine or very thin, fine or thin, medium, coarse or thick, and very coarse or very thick.

Type. Shape of soil aggregates. Terms: Platy, prismatic, columnar, angular blocky, subangular blocky, granular (nonporous), and crumb (very porous).

Subsoil. Technically, the B horizon of a soil that has distinct layers; commonly, that part of the profile below plow depth and above the unweathered parent material.

Substratum. Any layer beneath the solum, or true soil. (See also Parent material.)

Surface layer. Technically, the A horizon; commonly, the soil ordinarily moved in tillage, or its equivalent in uncultivated soil, about 5 to 8 inches thick.

Terrace (geological). An old alluvial plain, generally flat or undulating, bordering a stream; seldom subject to overflow; frequently called second bottom as contrasted with flood plain.

Texture, soil. The relative proportions of the various size groups of soil grains in a mass of soil; specifically, the proportions of clay, silt, and sand. Sand makes up a large part of a coarse-textured soil, and clay, a large part of a fine-textured soil.

Tilth, soil. The physical condition of a soil, especially the soil structure, that affects the growth of plants. A soil in good tilth has high porosity and stable, granular structure. One in poor tilth is nonfriable, nonaggregated, and hard, and it is difficult to till.

Topsoil (engineering). Soil material from the surface layer that is generally fairly high in content of organic matter. It is used to topdress roadbanks, gardens, and lawns.

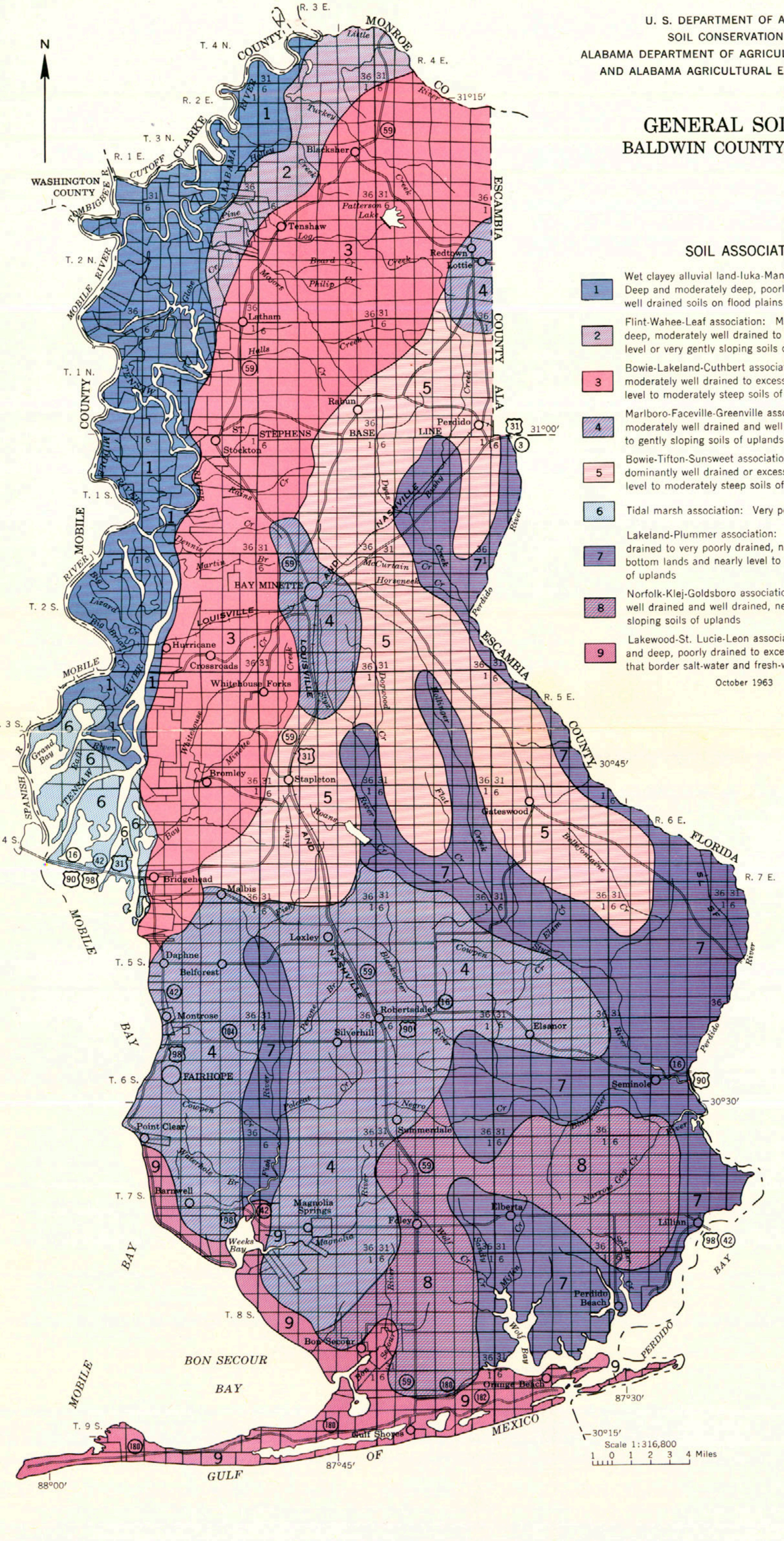
Understory. A layer of foliage in a forest below the level of the main canopy; also, the vegetation forming such a layer.

Water table. The upper limit of the part of the soil or underlying rock material that is wholly saturated with water. In some places an upper, or perched, water table may be separated from a lower one by a dry zone.

Well graded (engineering). A term used to indicate that a soil consists of particles well distributed over a wide range in size or diameter. Such a soil normally can be easily increased in density and in bearing properties by compaction.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
ALABAMA DEPARTMENT OF AGRICULTURE AND INDUSTRIES
AND ALABAMA AGRICULTURAL EXPERIMENT STATION

GENERAL SOIL MAP
BALDWIN COUNTY, ALABAMA

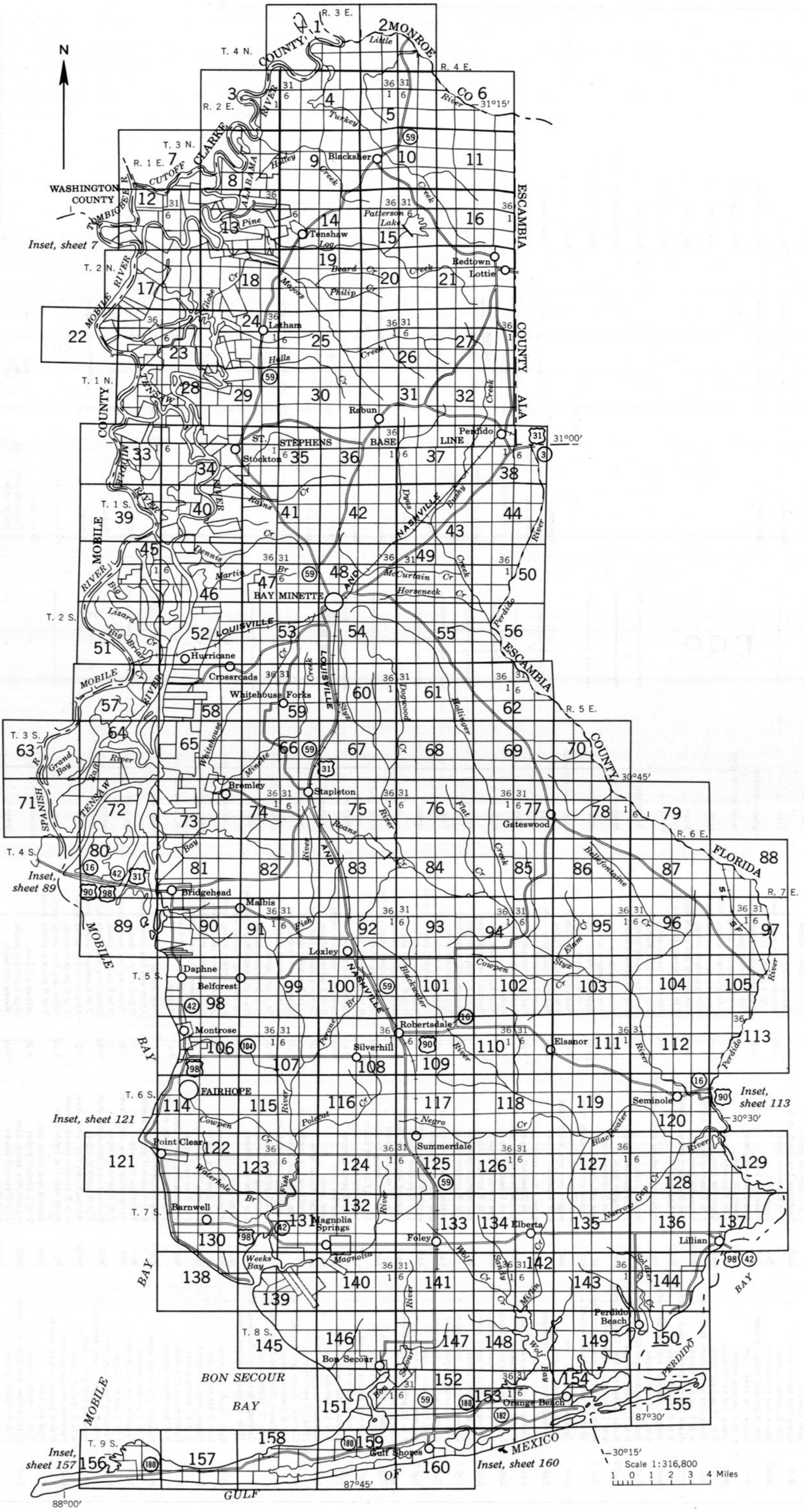


SOIL ASSOCIATIONS

1. Wet clayey alluvial land-Iuka-Mantachie association: Deep and moderately deep, poorly drained to moderately well drained soils on flood plains of rivers
2. Flint-Wahee-Leaf association: Moderately deep and deep, moderately well drained to poorly drained, nearly level or very gently sloping soils of terraces
3. Bowie-Lakeland-Cuthbert association: Shallow to deep, moderately well drained to excessively drained, nearly level to moderately steep soils of uplands
4. Marlboro-Faceville-Greenville association: Deep, moderately well drained and well drained, nearly level to gently sloping soils of uplands
5. Bowie-Tifton-Sunsweet association: Shallow to deep, dominantly well drained or excessively drained, nearly level to moderately steep soils of uplands
6. Tidal marsh association: Very poorly drained marshland
7. Lakeland-Plummer association: Deep, somewhat excessively drained to very poorly drained, nearly level soils of bottom lands and nearly level to moderately steep soils of uplands
8. Norfolk-Klej-Goldsboro association: Deep, moderately well drained and well drained, nearly level to gently sloping soils of uplands
9. Lakewood-St. Lucie-Leon association: Moderately deep and deep, poorly drained to excessively drained soils that border salt-water and fresh-water lakes

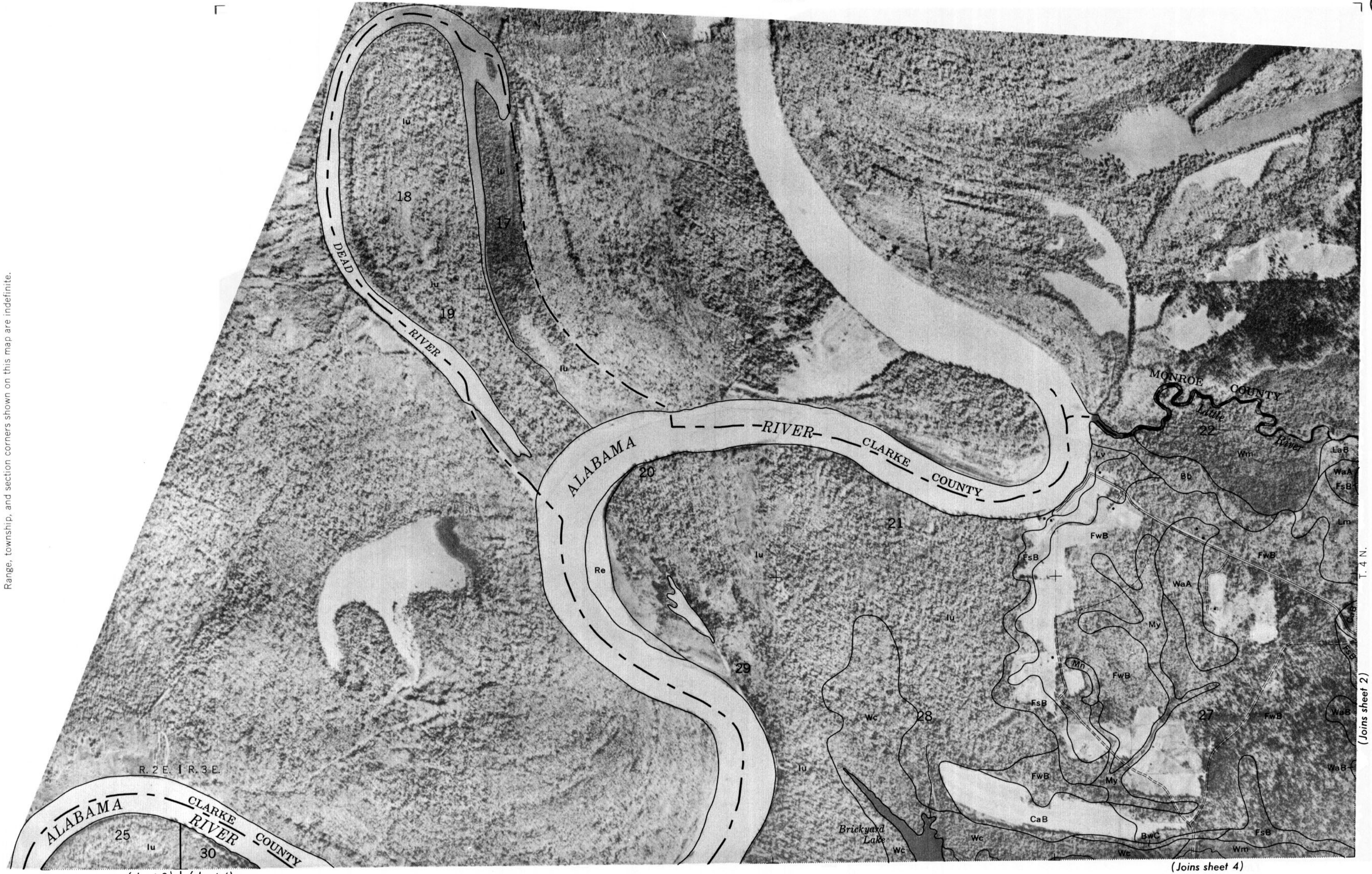
October 1963

INDEX TO MAP SHEETS
BALDWIN COUNTY, ALABAMA



R. 3 E.

1



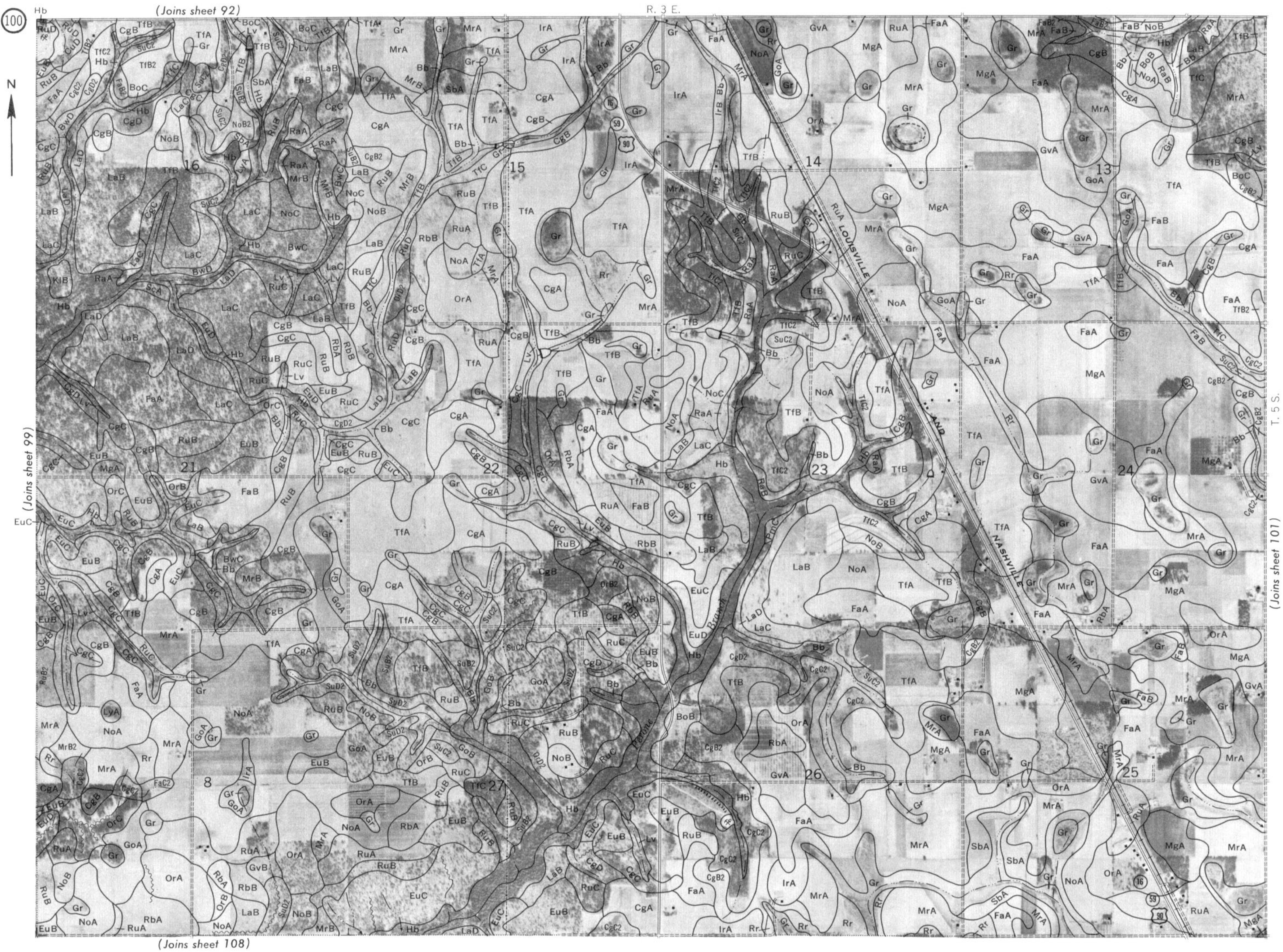
This map is one of a set compiled in 1962, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.

0 ½ 1 Mile Scale 1:20000 0 5000 Feet

BALDWIN COUNTY, ALABAMA — SHEET NUMBER 10

BALDWIN COUNTY, ALABAMA — SHEET NUMBER 100



0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

Range, township, and section corners shown on this map are indefinite.

0 ½ 1 Mile
Scale 1:20 000
0 5000 Feet

BALDWIN COUNTY, ALABAMA — SHEET NUMBER 102

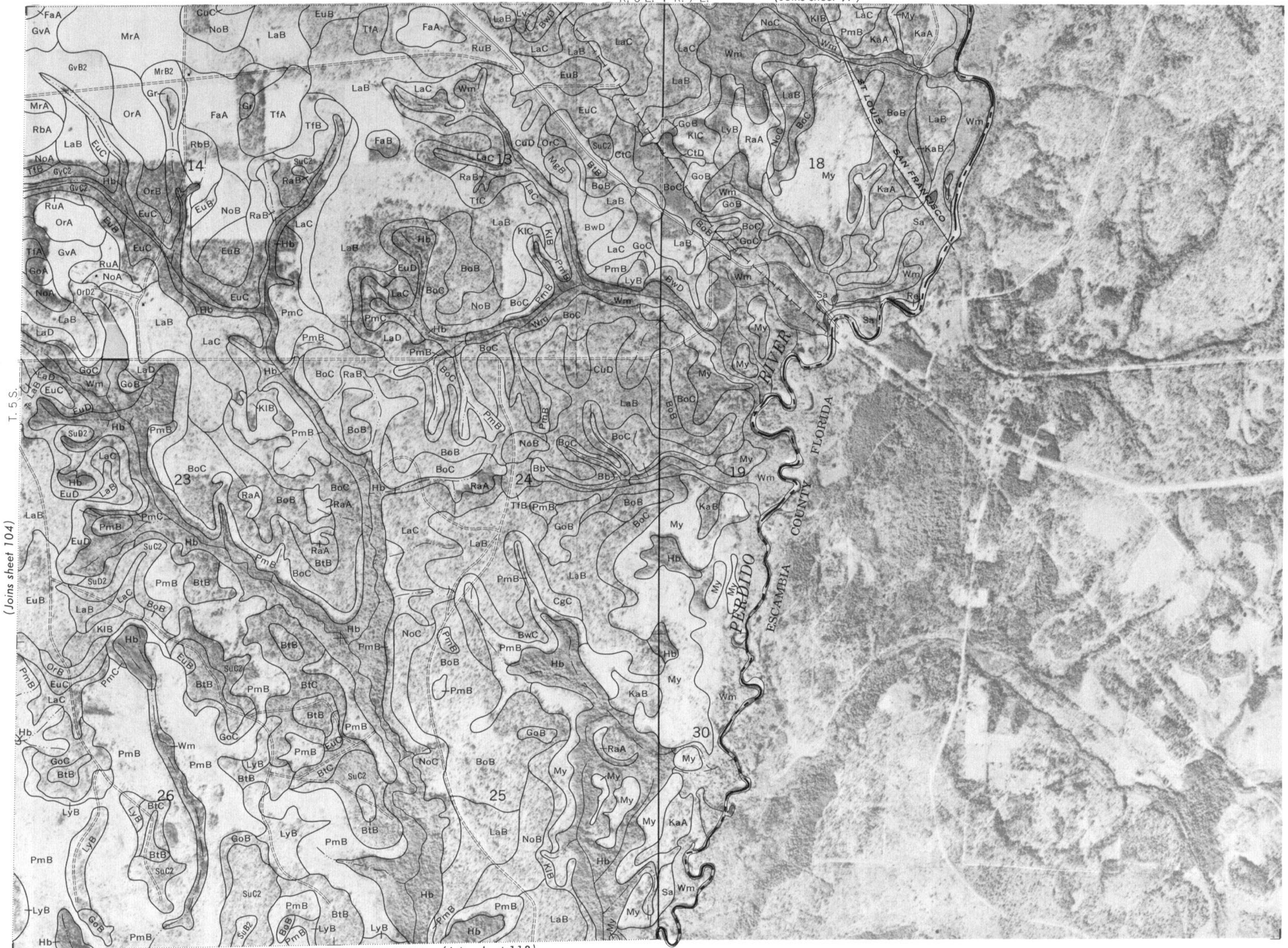
0 ½ 1 Mile
Scale 1:20 000
0 5000 Feet

Range, township, and section corners shown on this map are indefinite.

BALDWIN COUNTY, ALABAMA — SHEET NUMBER 104

R. 6 E. | R. 7 E. (Joins sheet 97)

105



(Joins sheet 104)

(Joins sheet 113)

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

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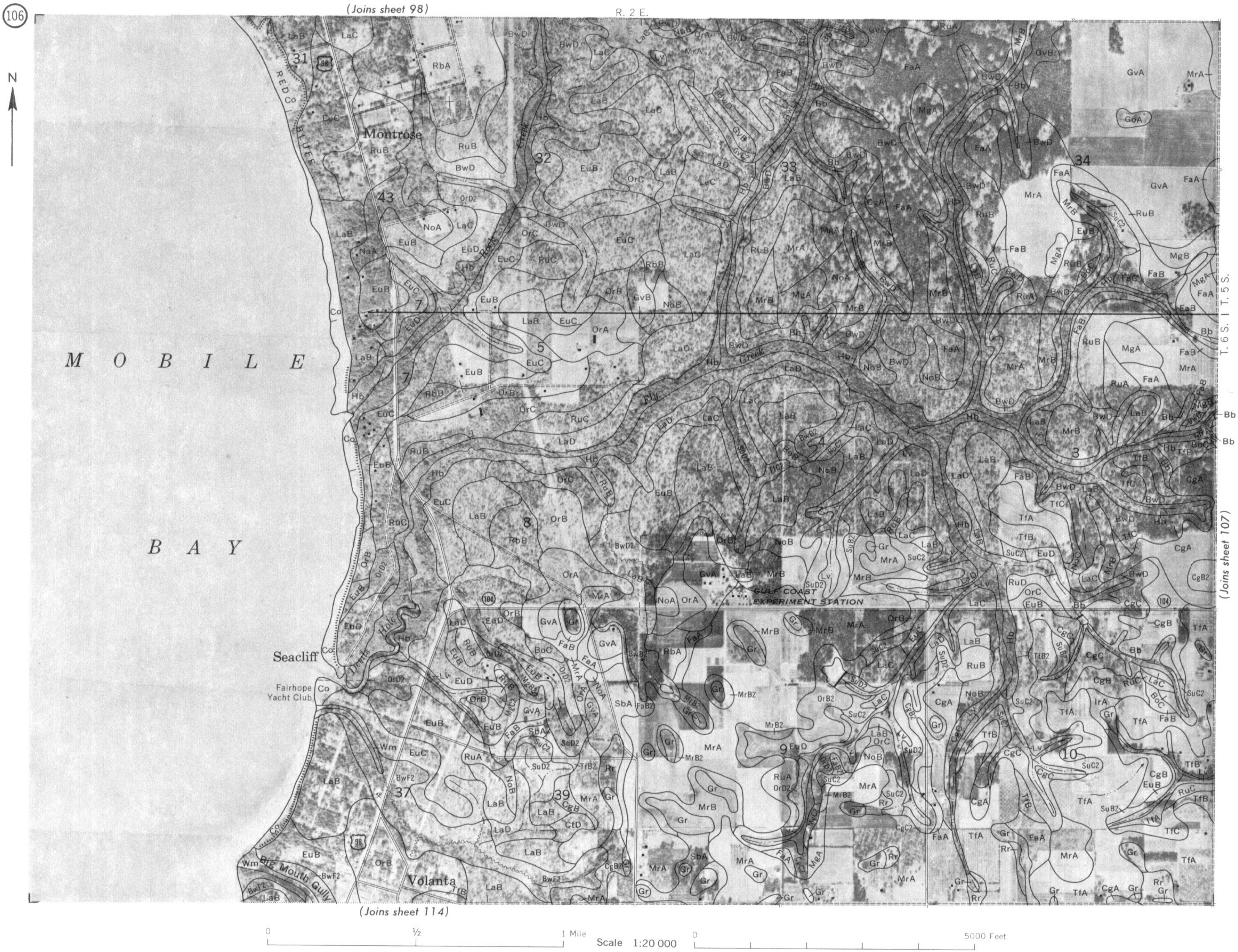
106
(Joins sheet 98)
R. 2 E.
N
MOBILE
BAY
RED BLUFF
Montrose
Seacliff
Fairhope Yacht Club
Volanta
Rock Creek
Fly Creek
Devils Hole
Big Mouth Gully
GULF COAST EXPERIMENT STATION
T. 5 S.
T. 6 S.
(Joins sheet 107)
(Joins sheet 114)
0
½
1 Mile
Scale 1:20 000
0
5000 Feet

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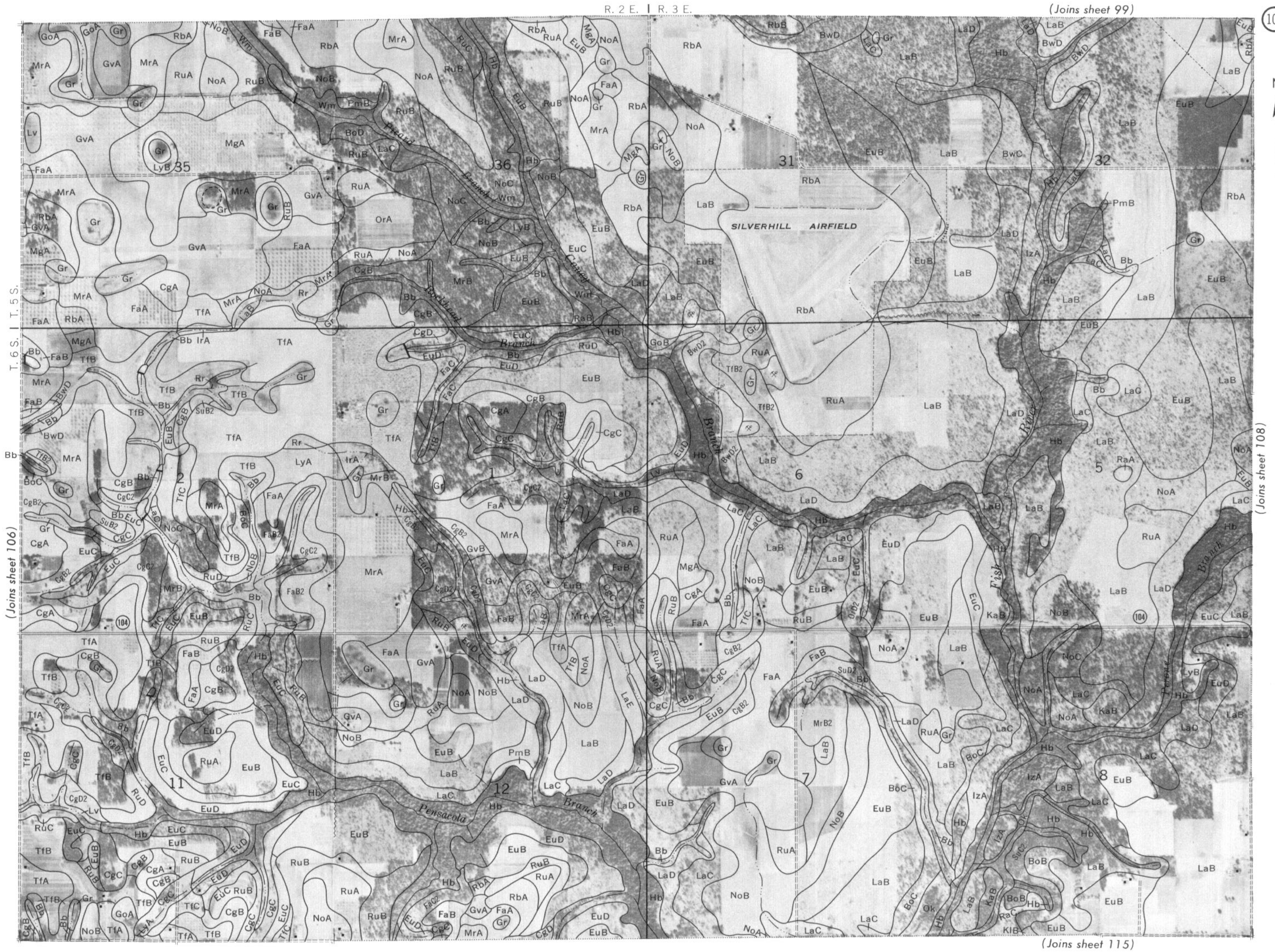
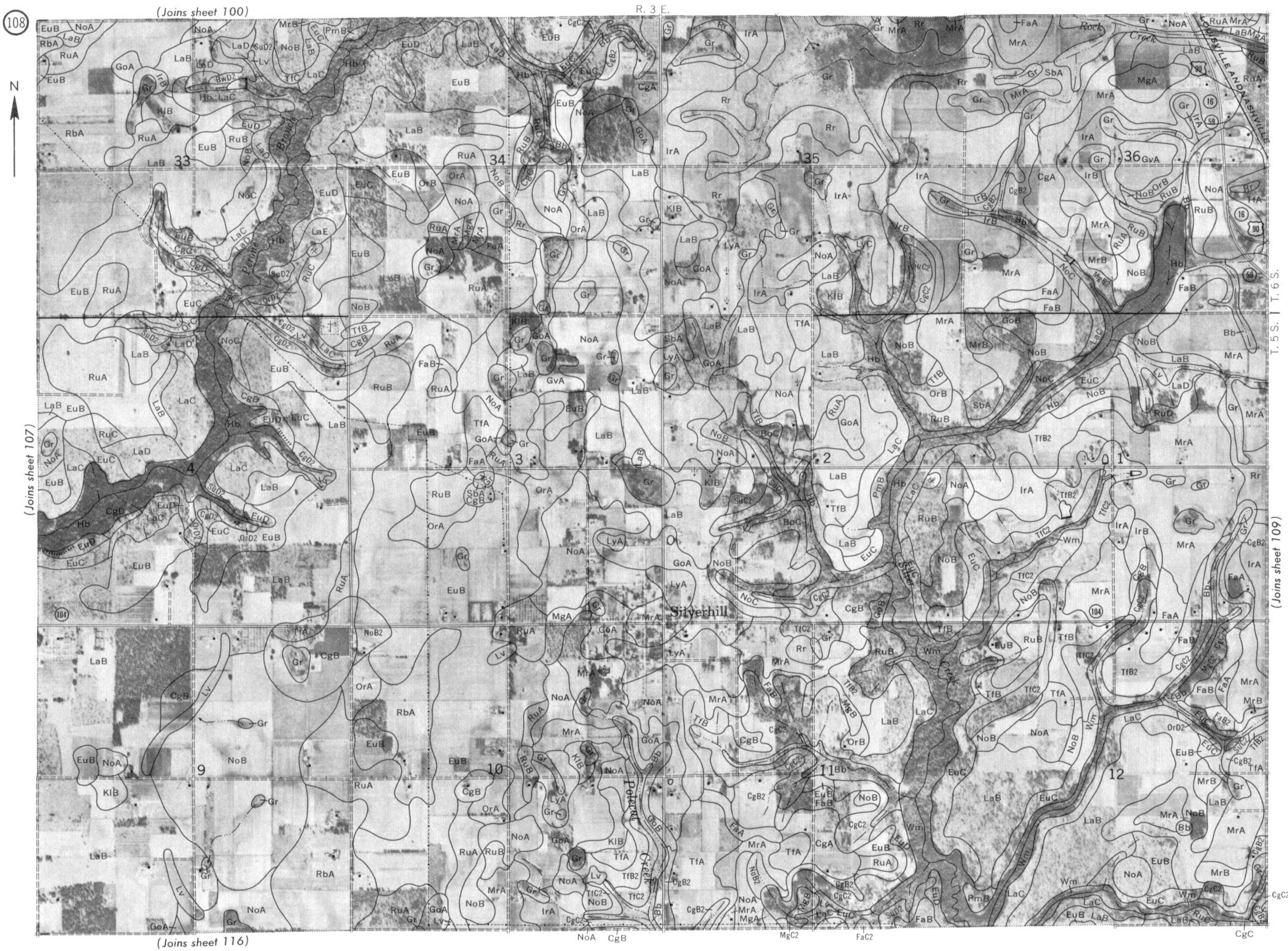


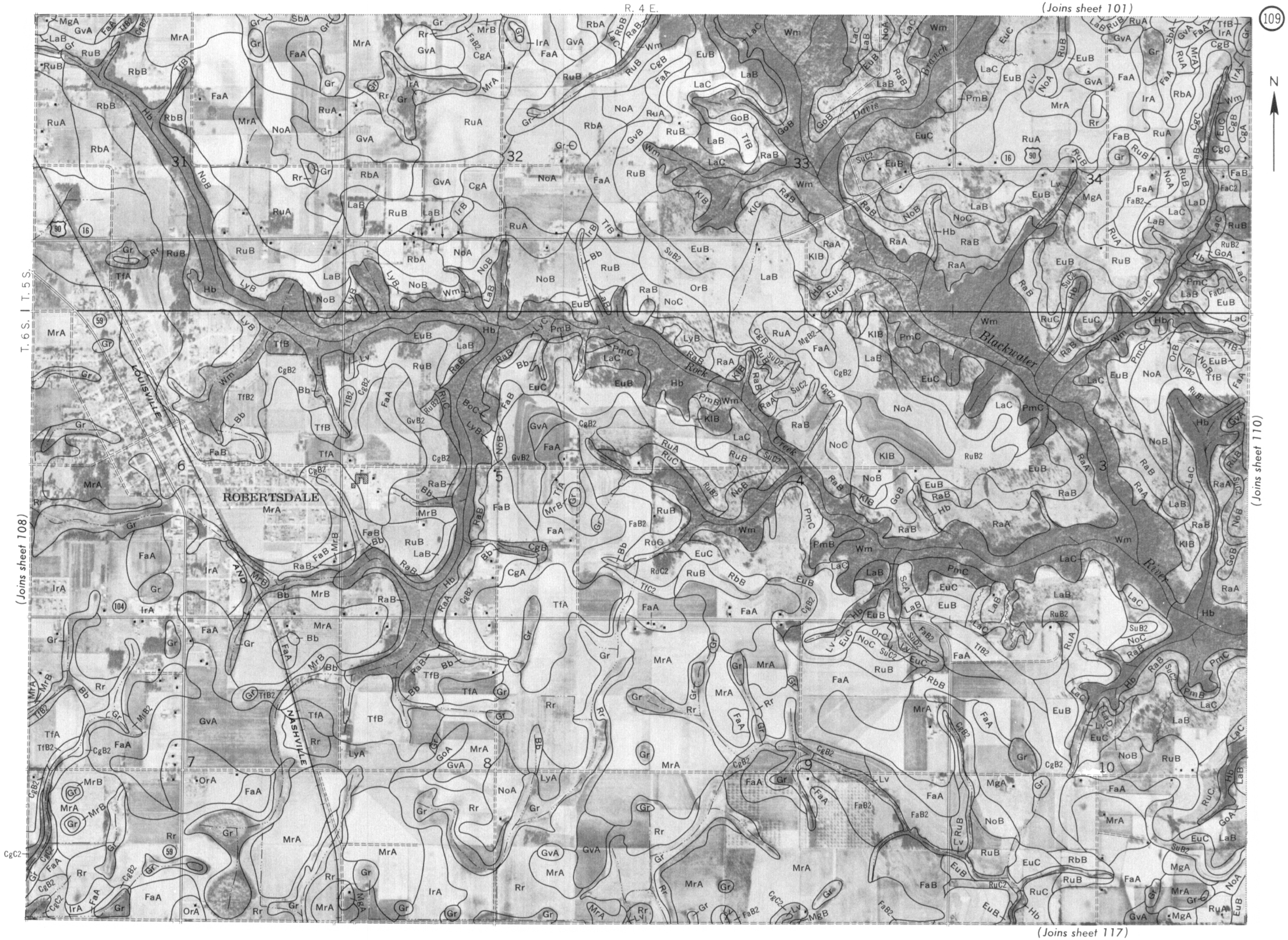
0 ½ 1 Mile

Scale 1:20 000

0 5000 Feet



0 ½ 1 Mile Scale 1:20 000 0 5000 Feet



Scale 1:20 000 — 0, ½, 1 Mile — 0, 5000 Feet

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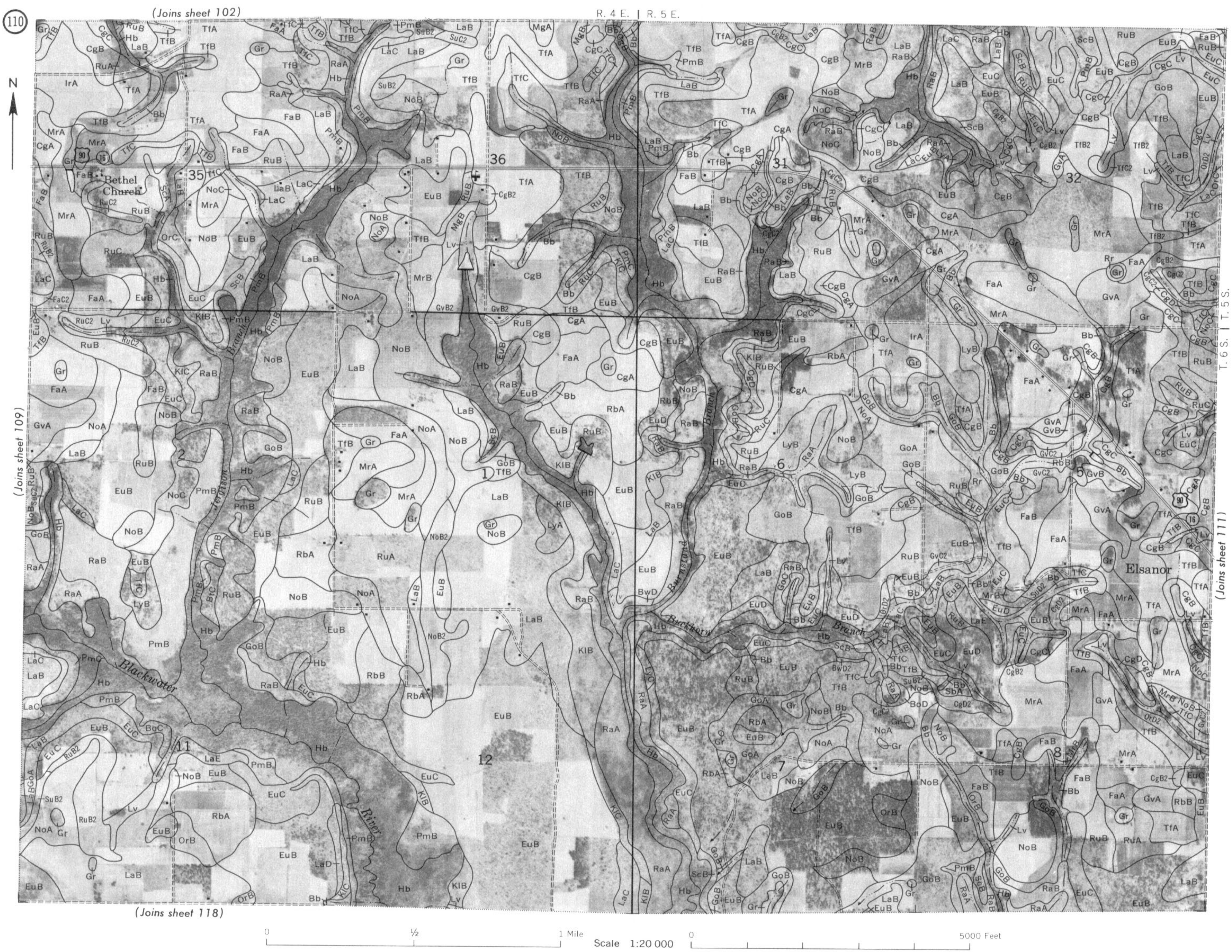
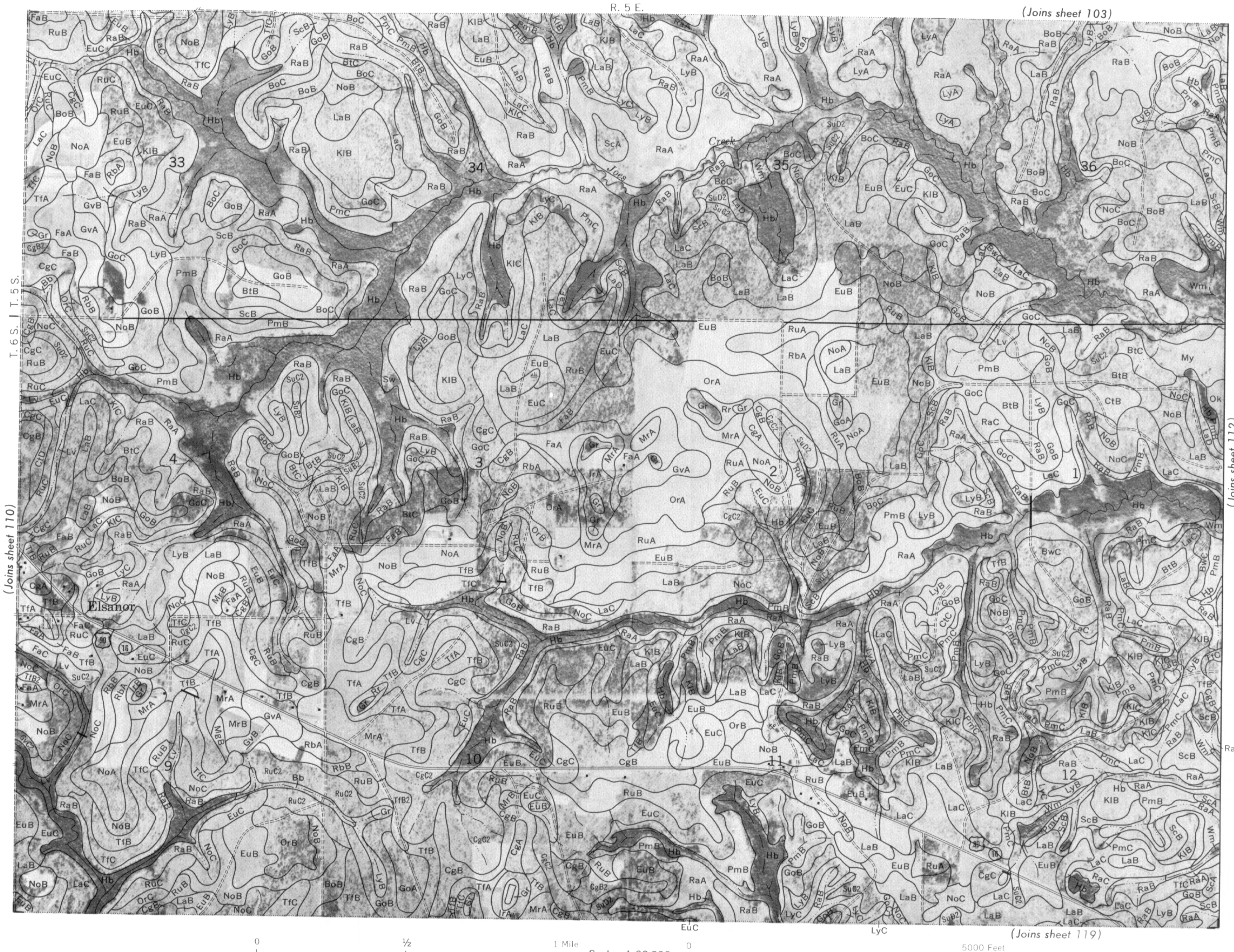

110
(Joins sheet 102)
R. 4 E. | R. 5 E.
N
(Joins sheet 109)
(Joins sheet 111)
(Joins sheet 118)
T. 6 S. | T. 5 S.
Bethel Church
Elsanor
Blackwater River
Jefferson Branch
Burnt Land Branch
Buckhorn Branch
35
36
31
32
2
1
6
5
11
12
7
8
90
16
0
½
1 Mile
Scale 1:20 000
0
5000 Feet



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0 ½ 1 Mile Scale 1:20 000 0 5000 Feet


112
(Joins sheet 104)
R. 6 E.
N
(Joins sheet 111)
(Joins sheet 113)
T. 5 S.
T. 6 S.
Horsecollar Branch
RIVER
Soper Bay
Branch
(Joins sheet 120)
0
½
1 Mile
Scale 1:20 000
0
5000 Feet

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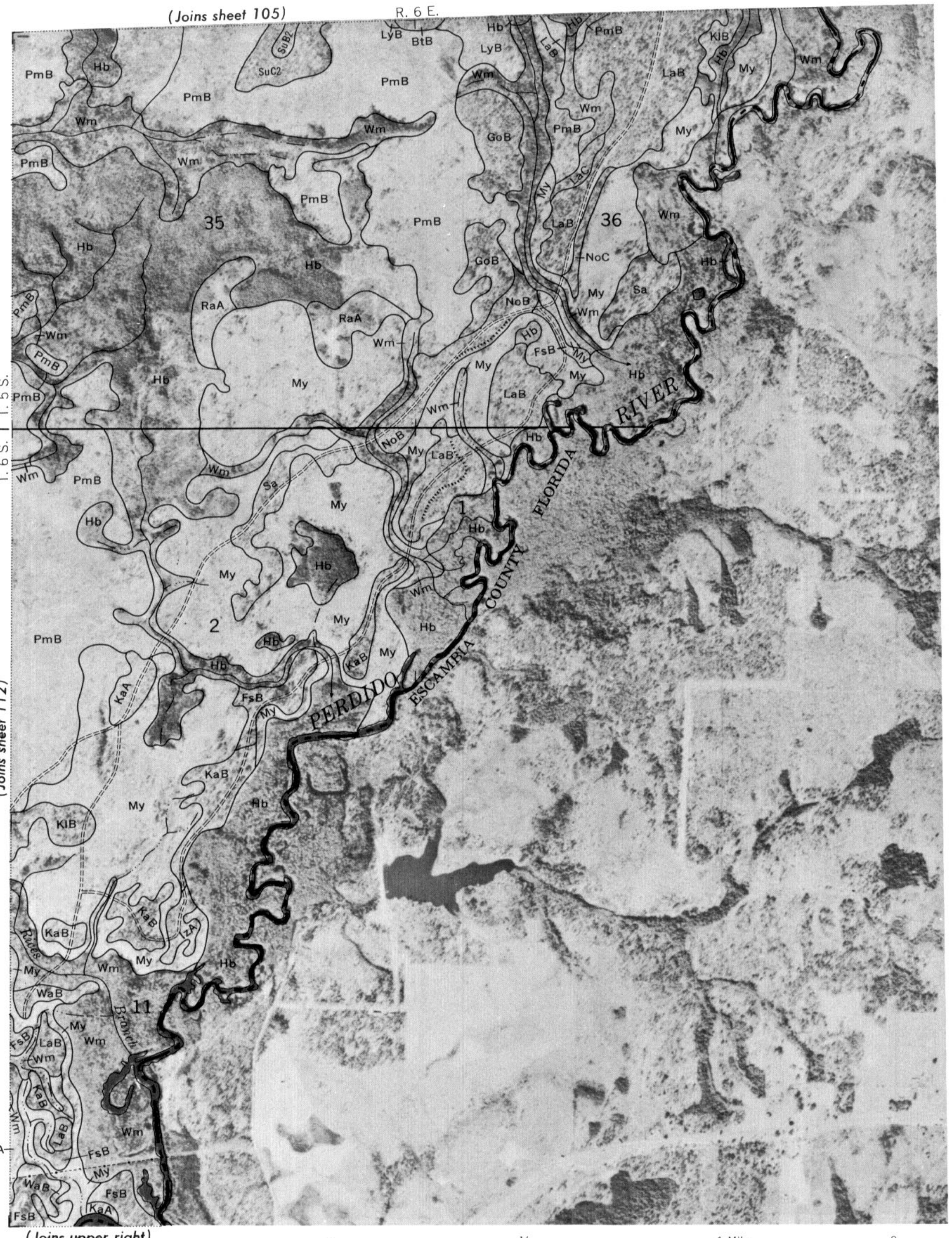
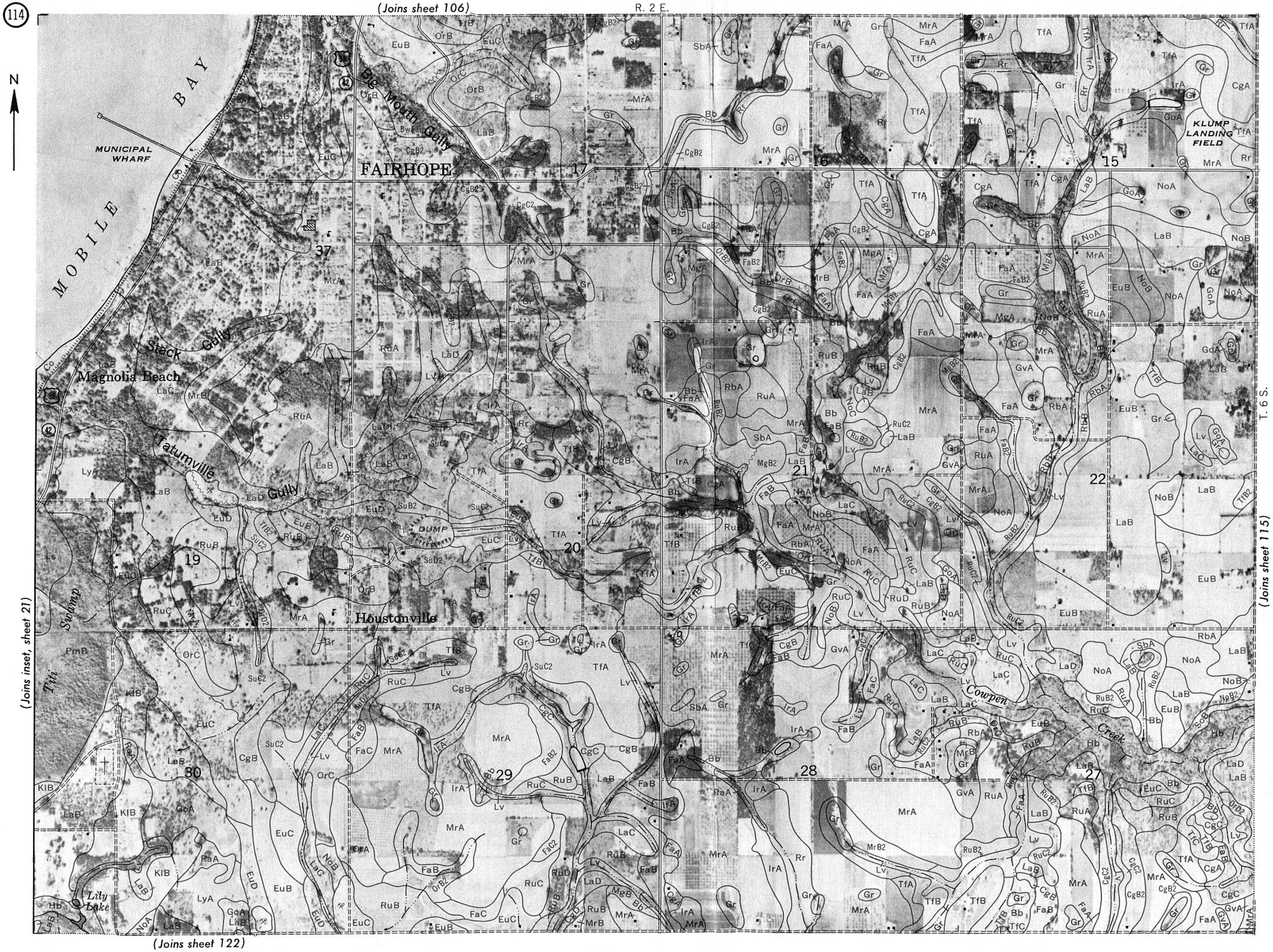


0 ½ 1 Mile

Scale 1:20 000

0 5000 Feet

114



0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

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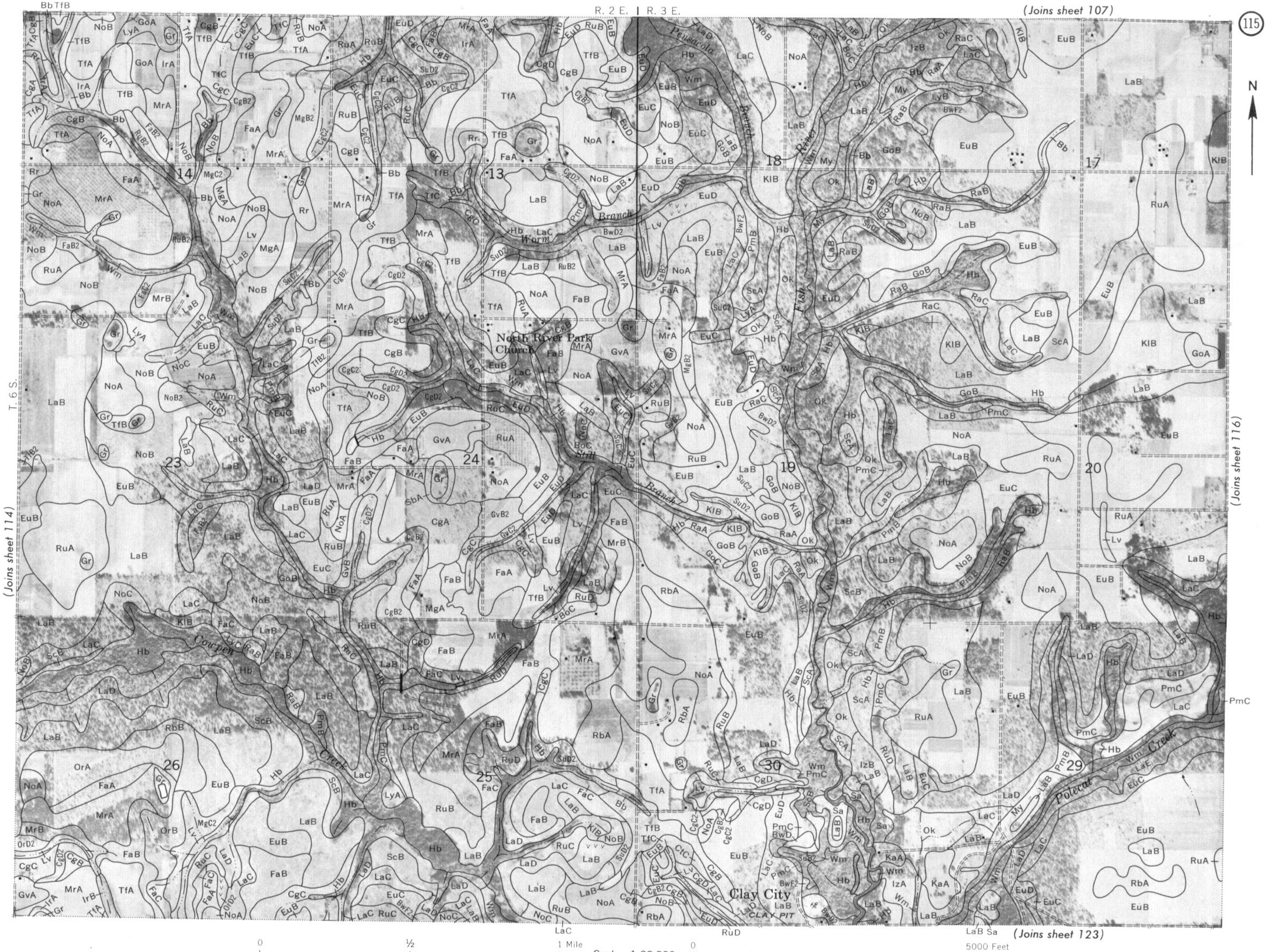


116
(Joins sheet 108)
R. 3 E.
N
(Joins sheet 115)
(Joins sheet 117)
T. 6 S.
(Joins sheet 124)
Polecat Creek
Silver Creek
Pattis Branch
Baker Branch
Scale 1:20 000
0
½
1 Mile
0
5000 Feet

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

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Scale 1:20 000

0 ½ 1 Mile

0 5000 Feet

119

R. 5 E.

(Joins sheet 111)

T. 6 S.

(Joins sheet 118)

(Joins sheet 120)

(Joins sheet 127)

0 ½ 1 Mile
Scale 1:20 000
0 5000 Feet

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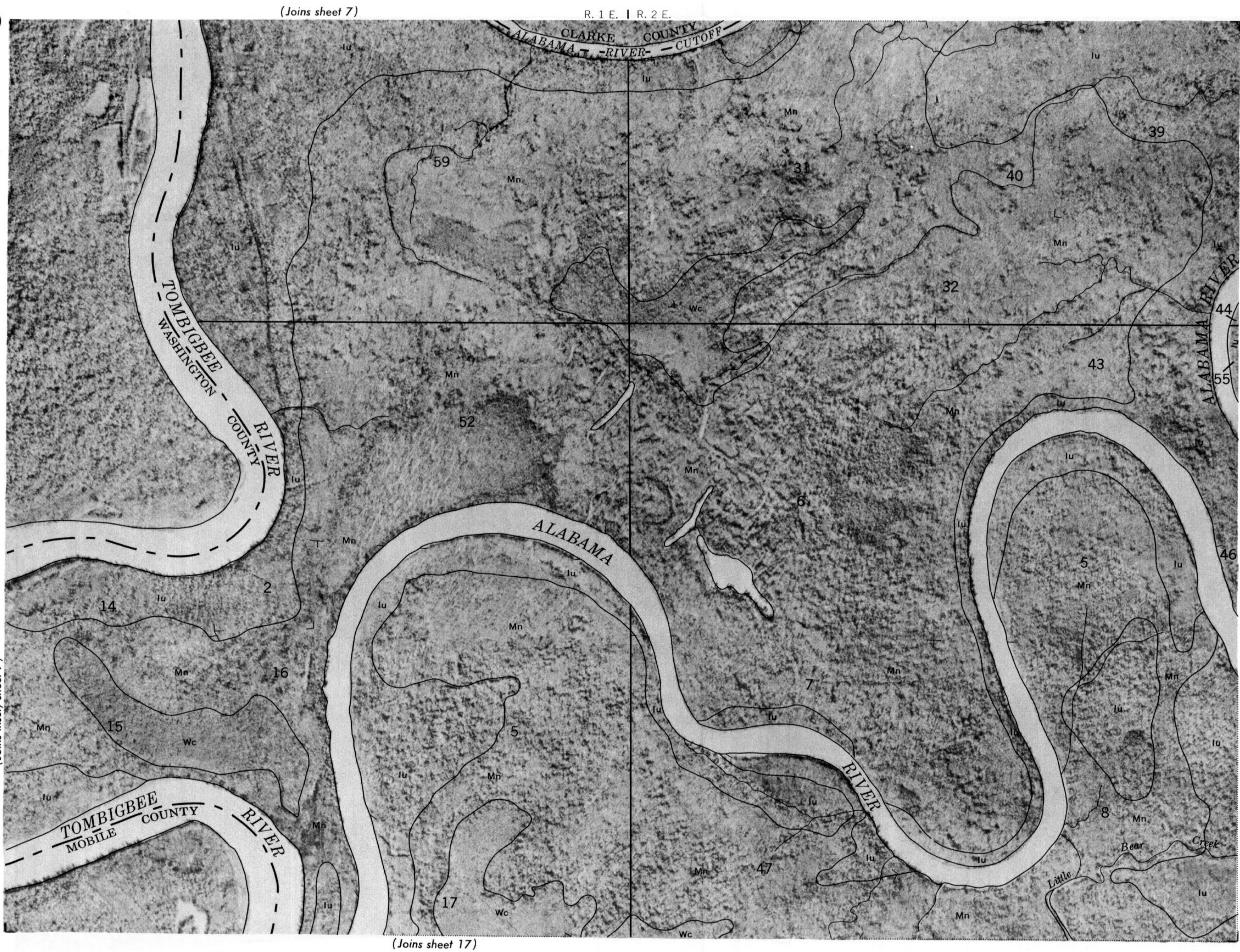
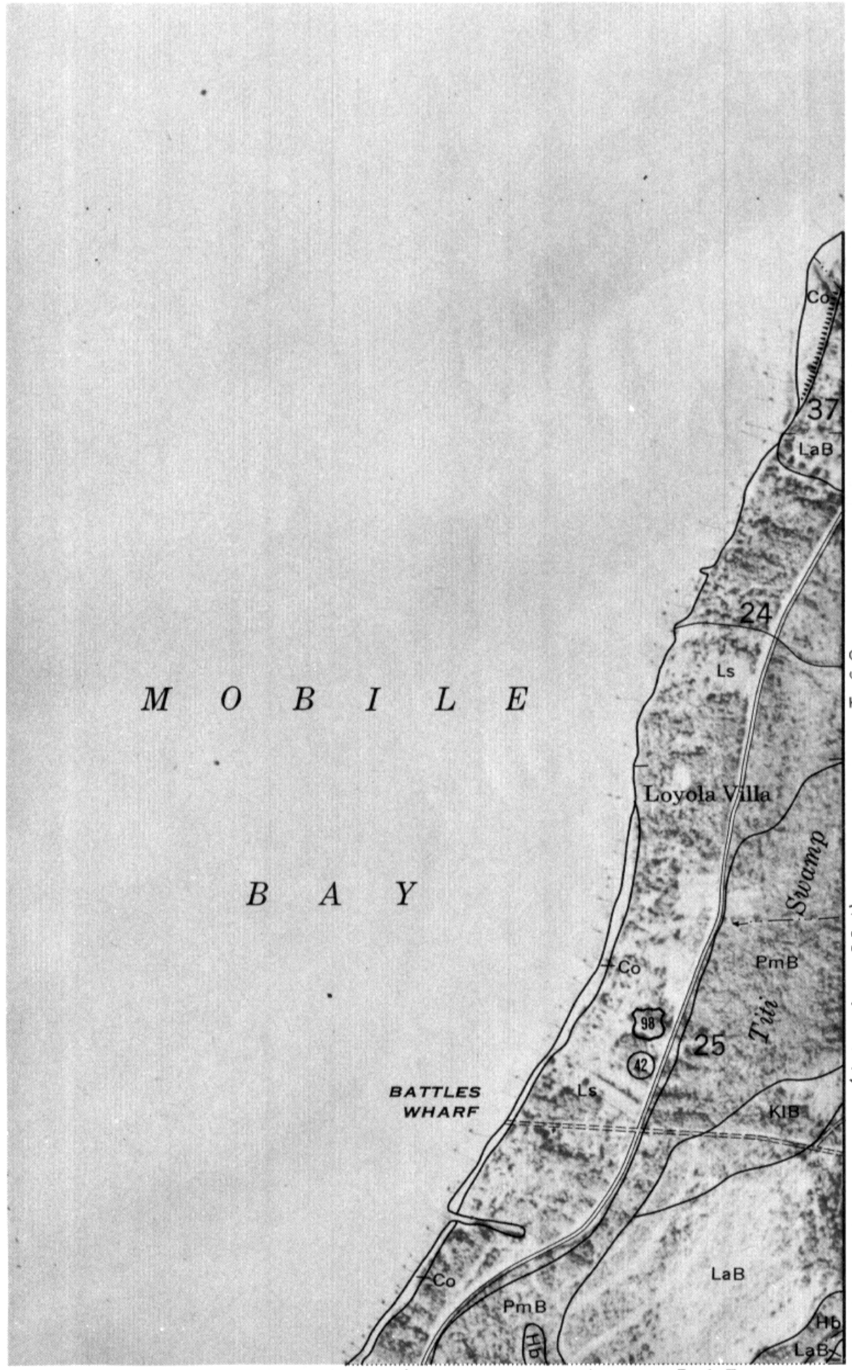
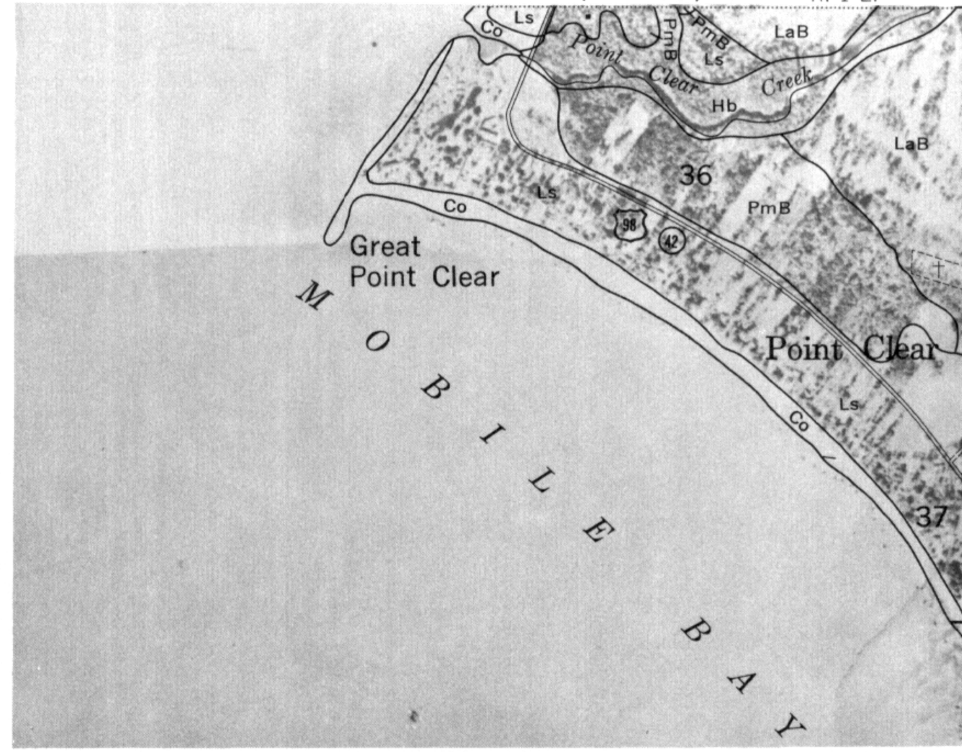


0 ½ 1 Mile Scale 1:20000 0 5000 Feet


120
(Joins sheet 112)
R. 6 E.
N
(Joins sheet 119)
(Joins inset, sheet 113)
(Joins sheet 128)
T. 6 S.
Seminole
STYX RIVER
PERDIDO RIVER
BLACKWATER RIVER
GRAVEL PIT
FLORIDA
ESCAMBIA COUNTY
90
16
15
16
17
18
19
20
21
22
27
28
29
30
0
½
1 Mile
Scale 1:20 000
0
5000 Feet





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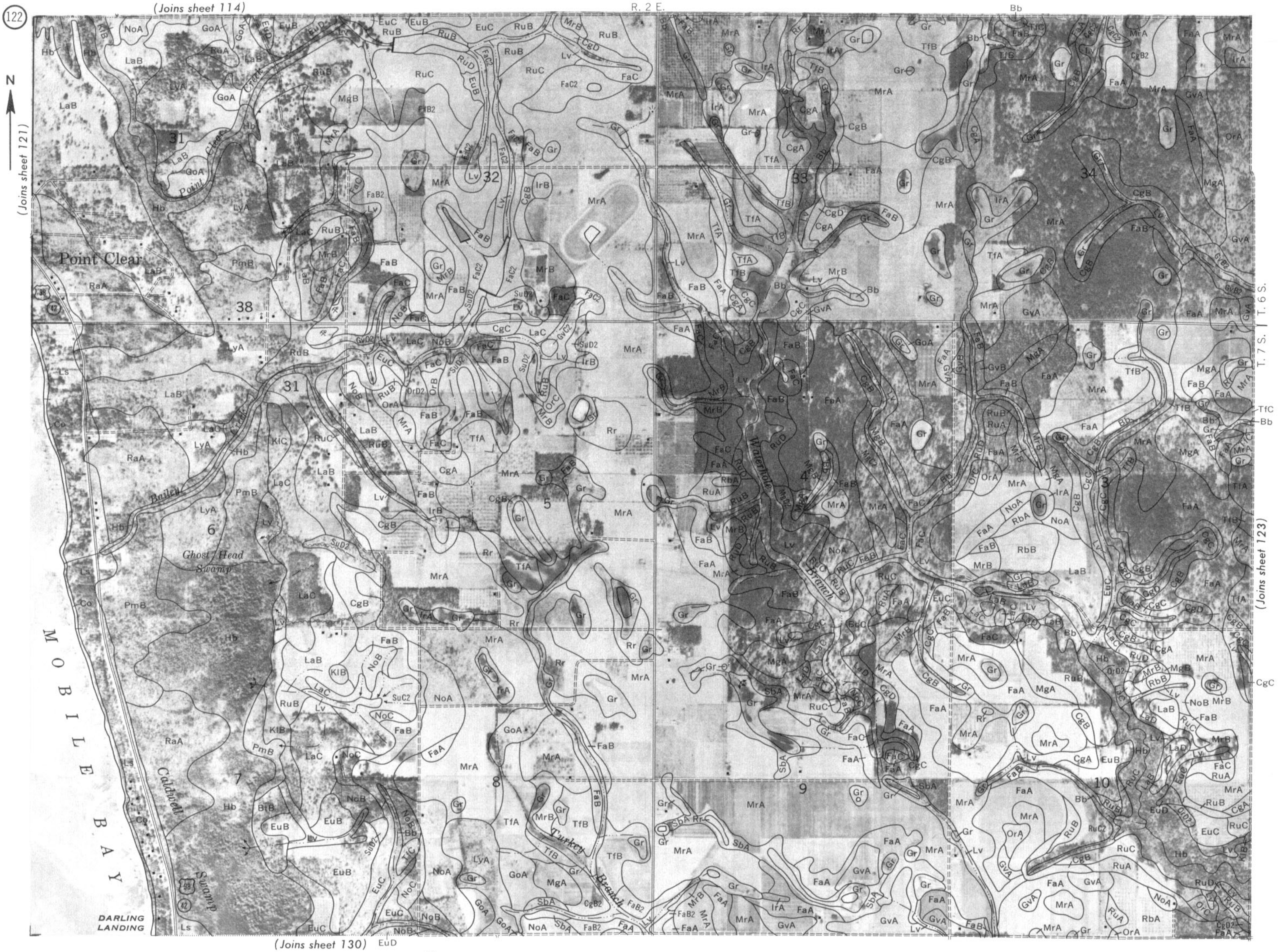
0 ½ 1 Mile

Scale 1:20 000

0 5000 Feet



Scale 1:20 000

0 ½ 1 Mile

0 5000 Feet

Scale 1:20 000

0 ½ 1 Mile

0 5000 Feet

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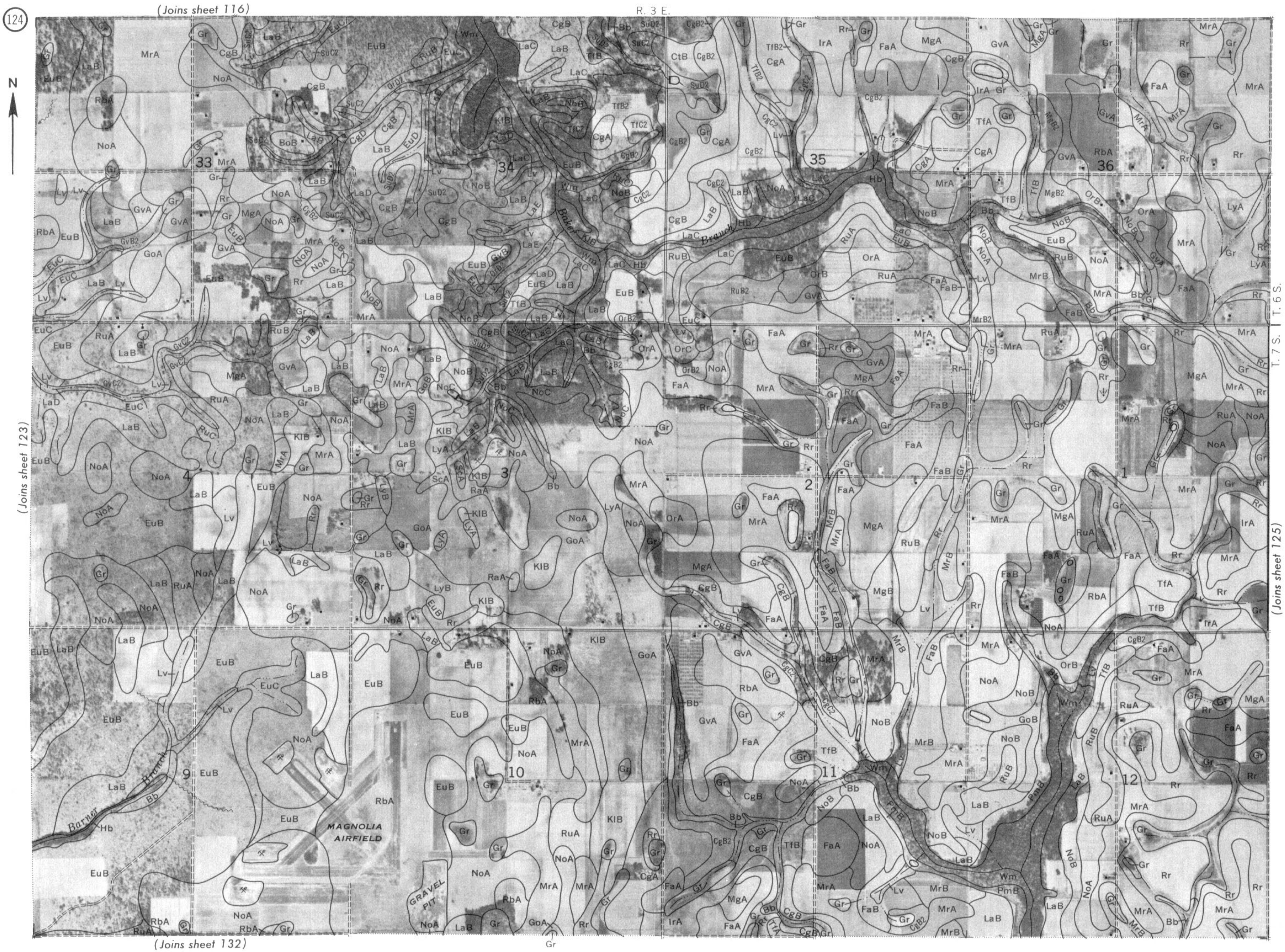


Scale 1:20 000

0 ½ 1 Mile

0 5000 Feet

R. 4 E.

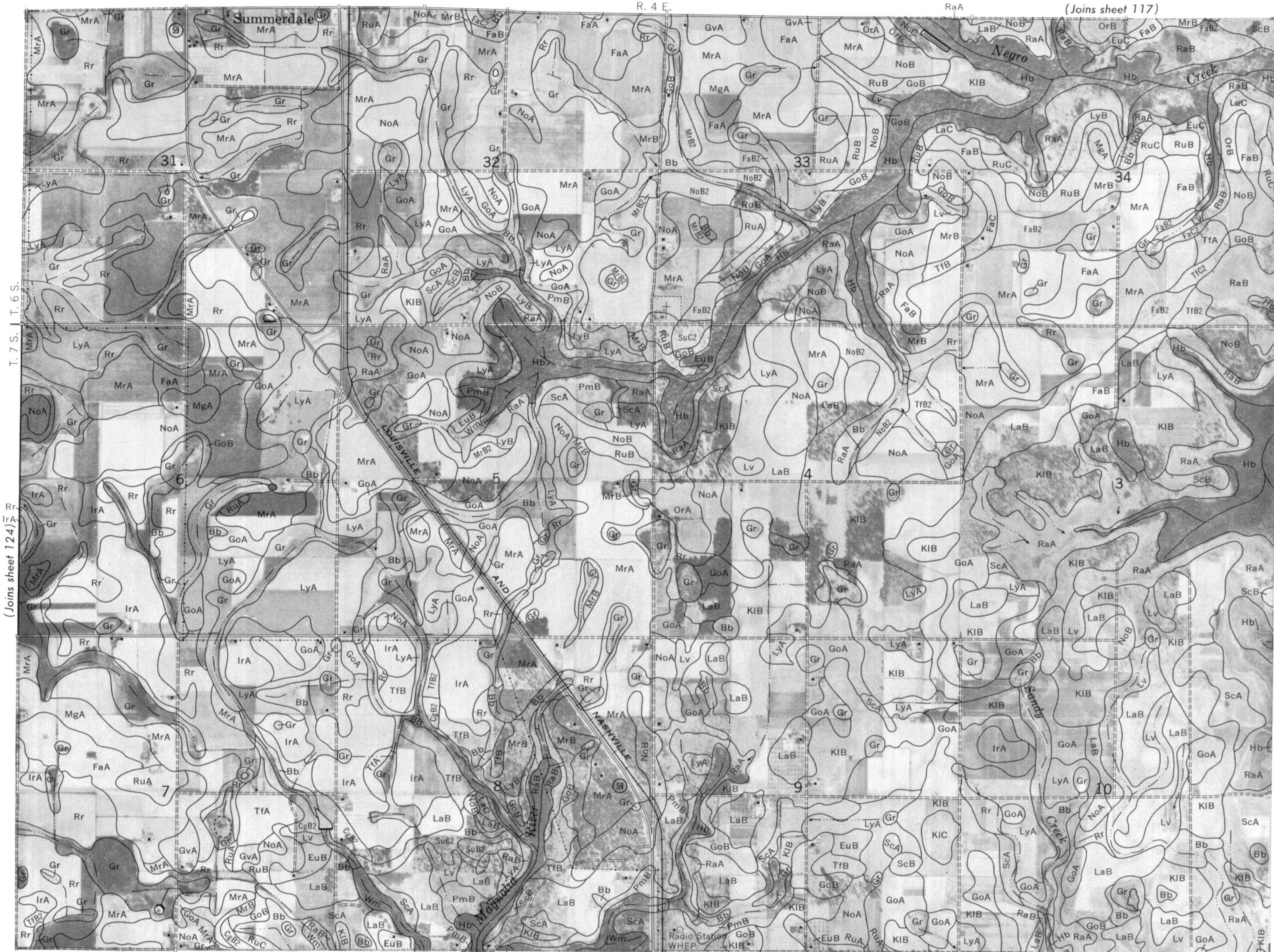
(Joins sheet 117)

125

N

T. 6 S. | T. 7 S.

(Joins sheet 124)



(Joins sheet 126)

(Joins sheet 133)

0 ½ 1 Mile

Scale 1:20 000

0 5000 Feet

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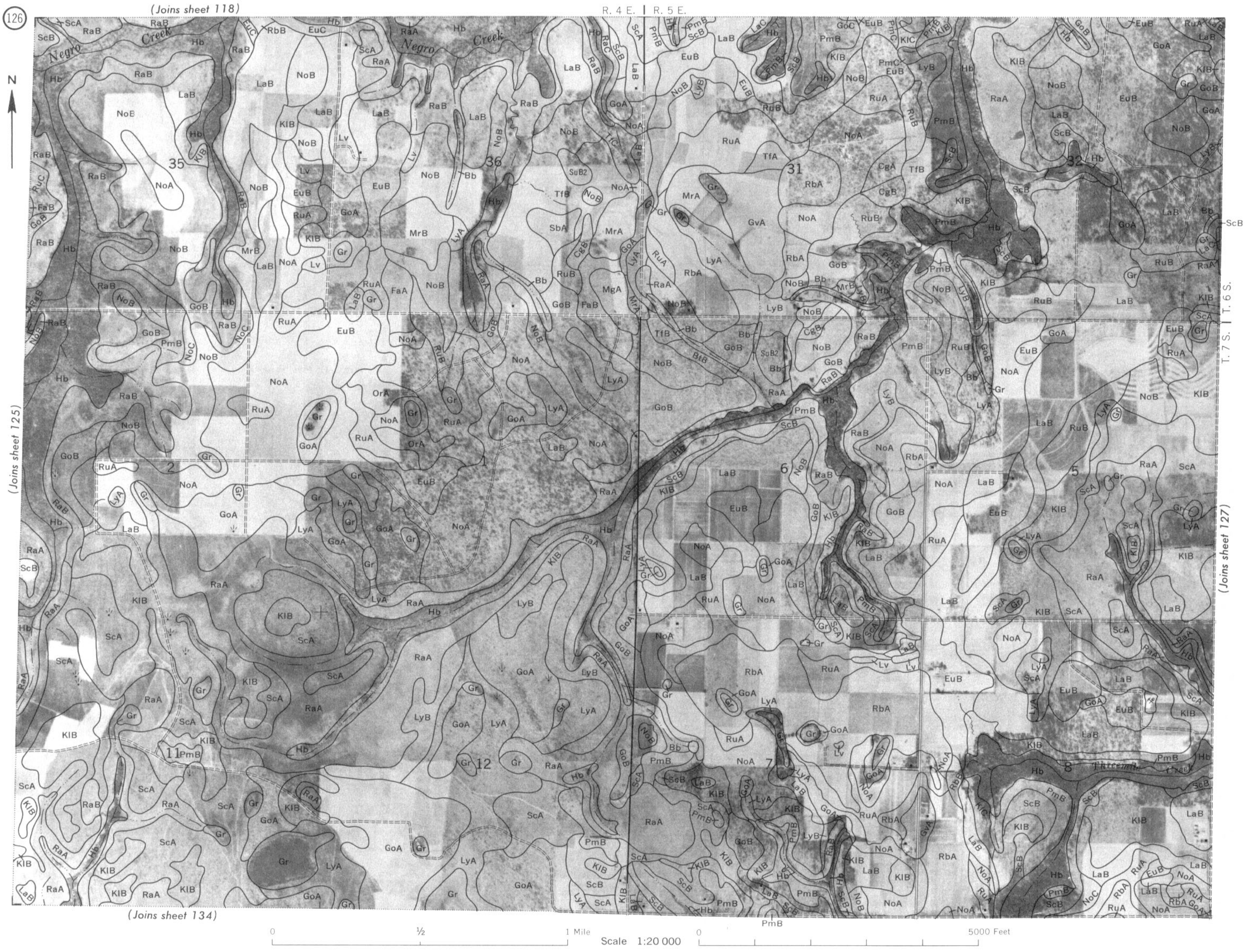
126
(Joins sheet 118)
R. 4 E. | R. 5 E.
N
Negro Creek
Threemile Creek
T. 6 S. | T. 7 S.
(Joins sheet 125)
(Joins sheet 127)
(Joins sheet 134)
0 ½ 1 Mile
Scale 1:20 000
0 5000 Feet

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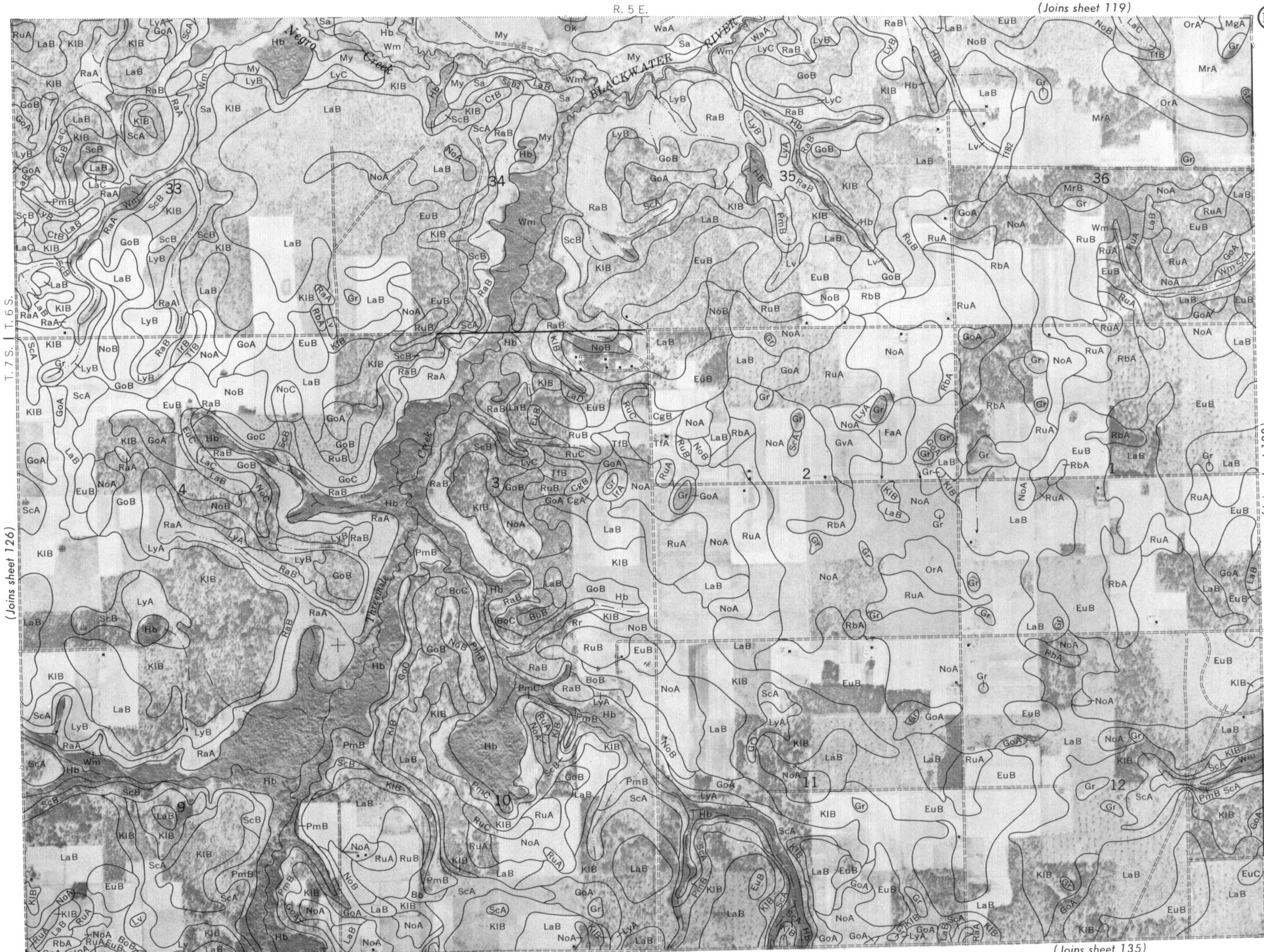

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

0 ½ 1 Mile

Scale 1:20 000

0 5000 Feet

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

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0 ½ 1 Mile Scale 1:20000 0 5000 Feet

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130

(Joins sheet 122)

R. 2 E.

T. 7 S.

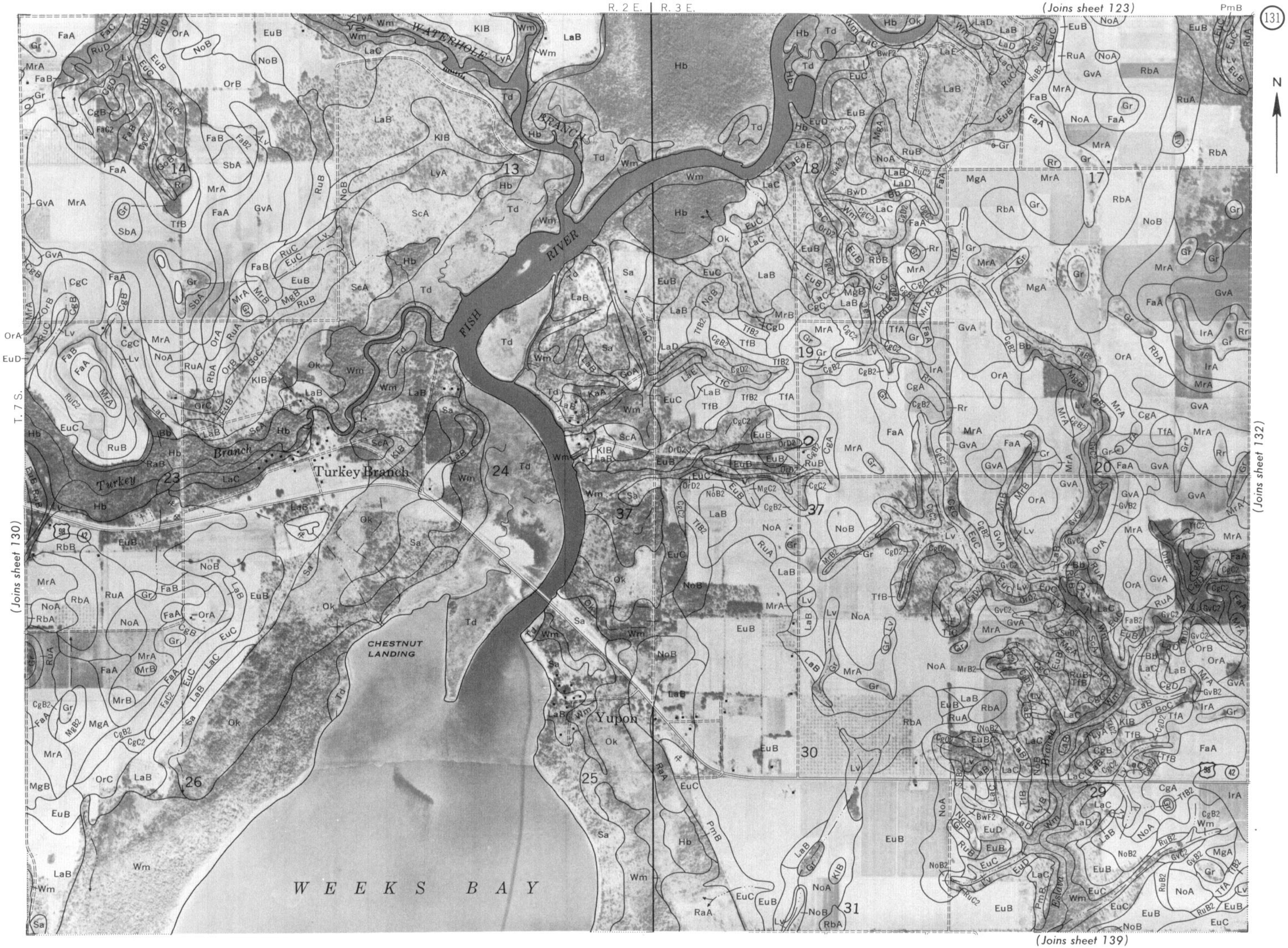
(Joins sheet 131)

(Joins sheet 138)

0 ½ 1 Mile

Scale 1:20 000

0 5000 Feet



0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

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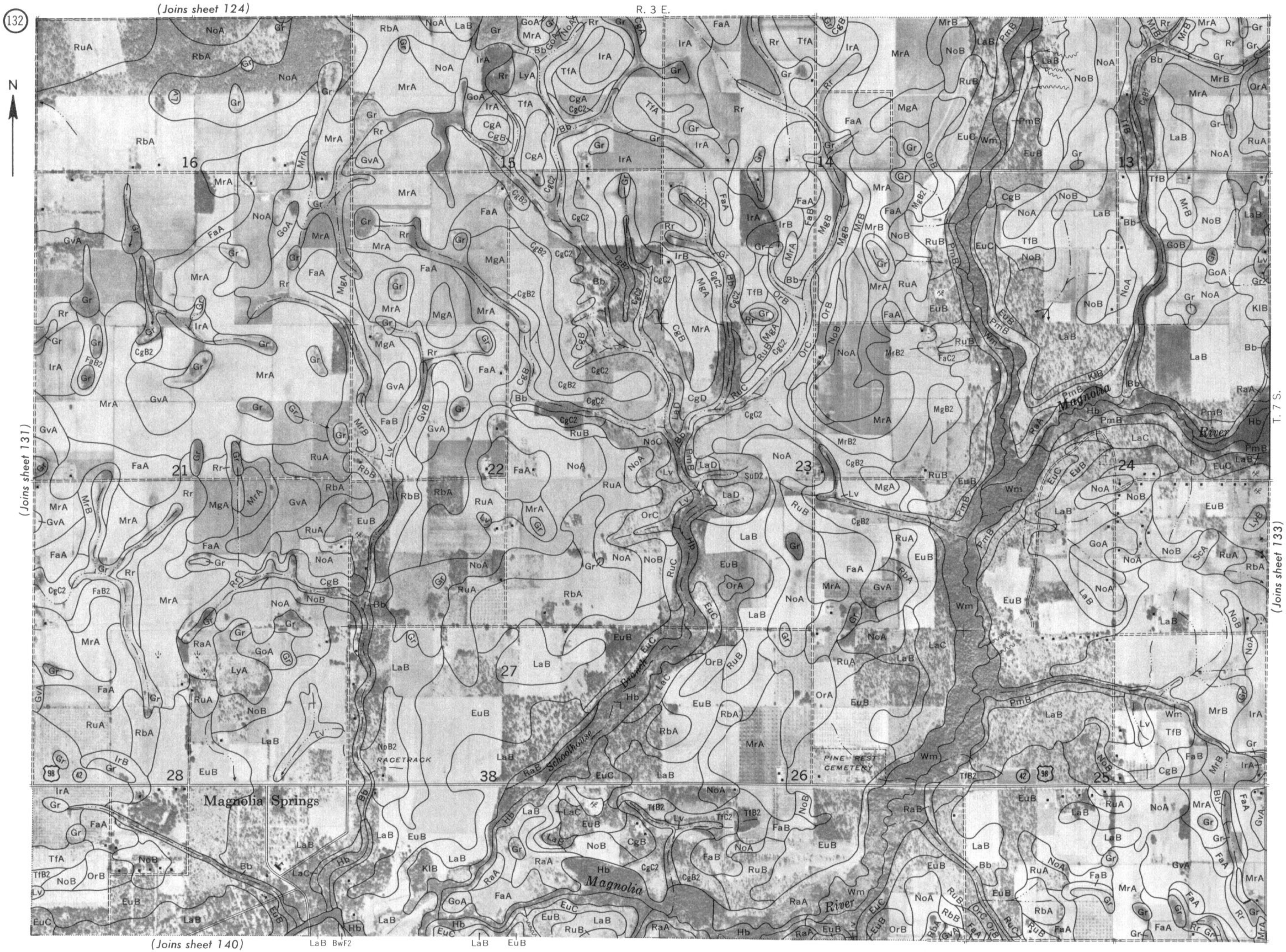
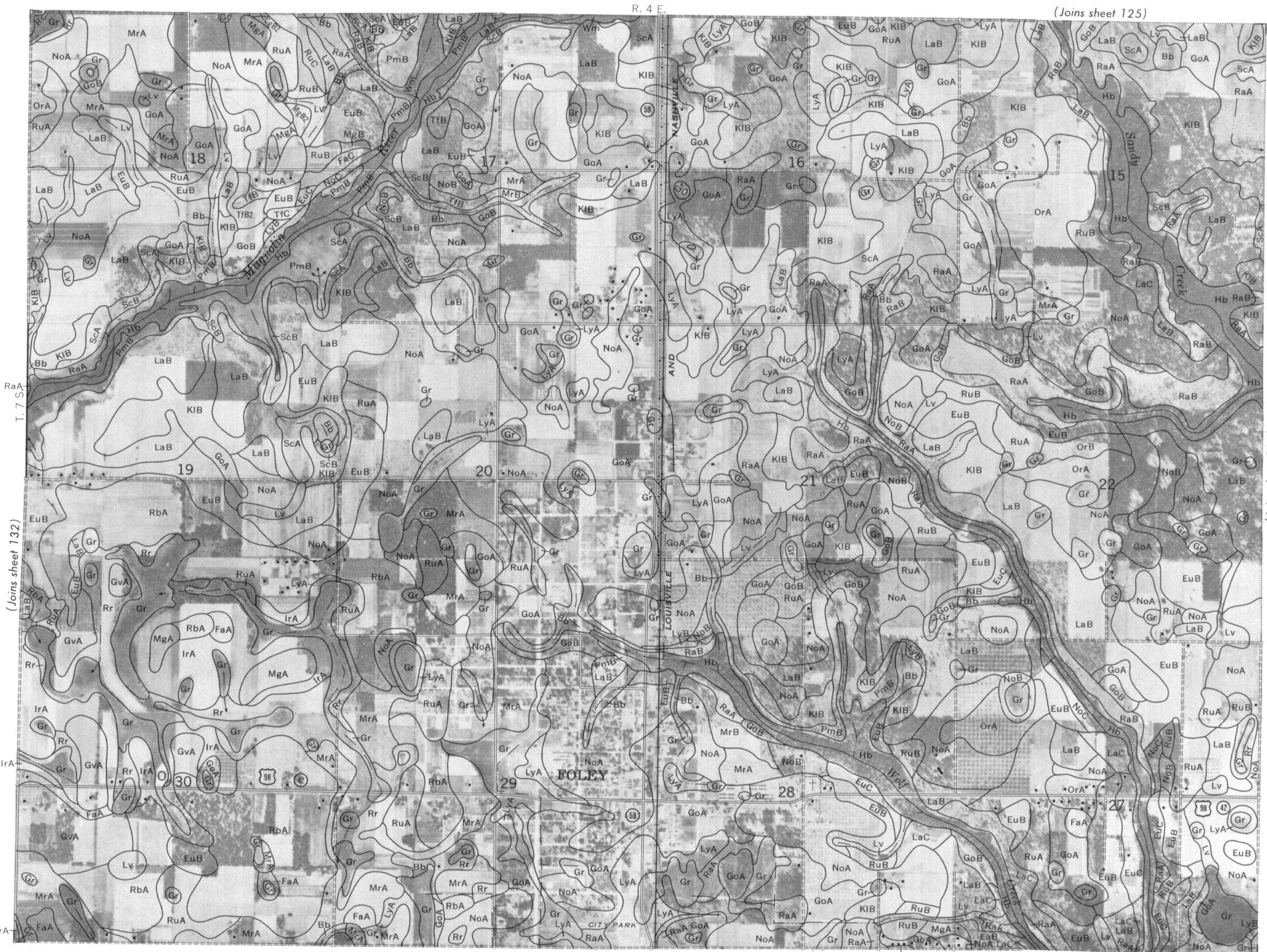
BALDWIN COUNTY, ALABAMA — SHEET NUMBER 132



0 ½ 1 Mile
Scale 1:20 000
0 5000 Feet



Scale 1:20 000
0 ½ 1 Mile
0 5000 Feet

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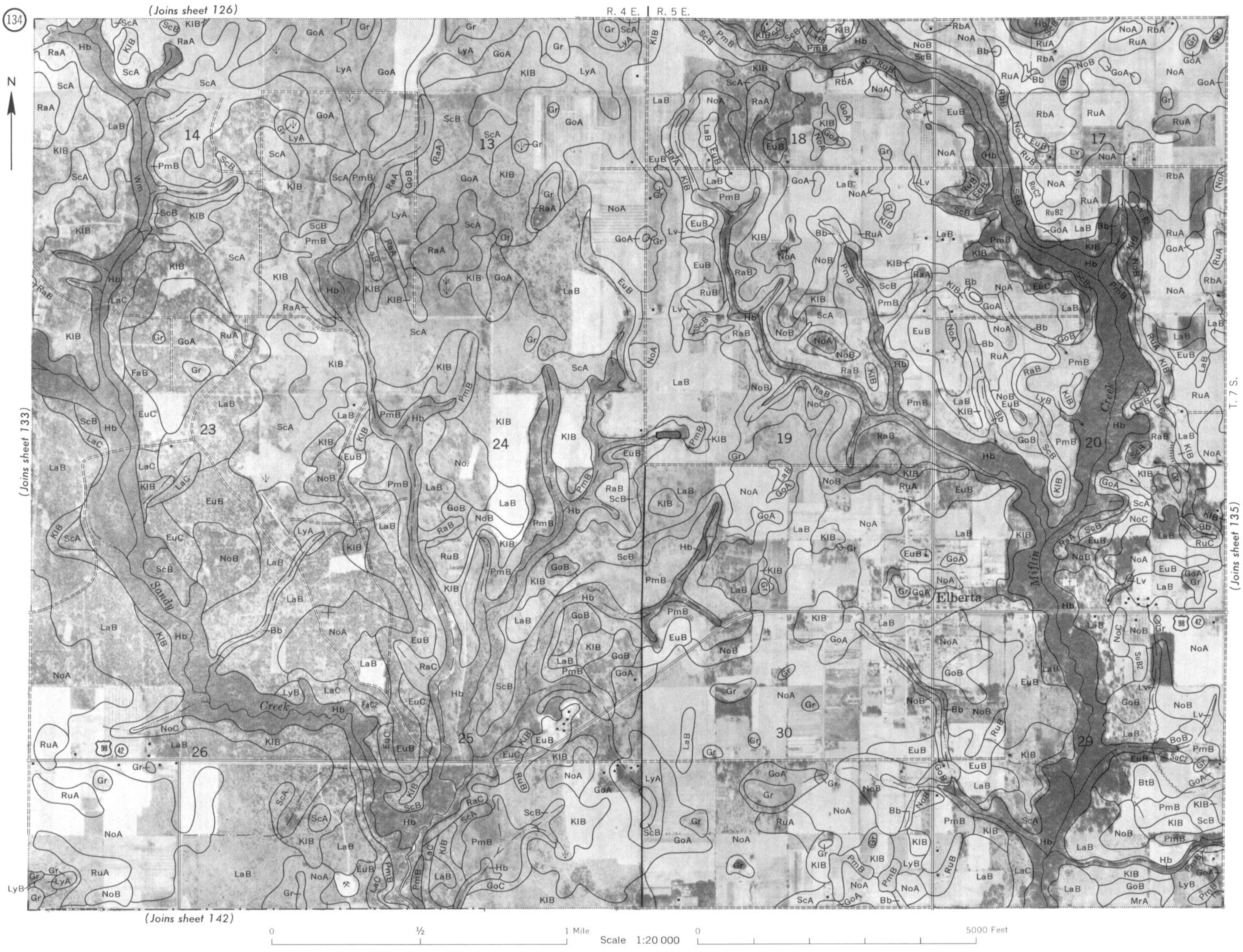
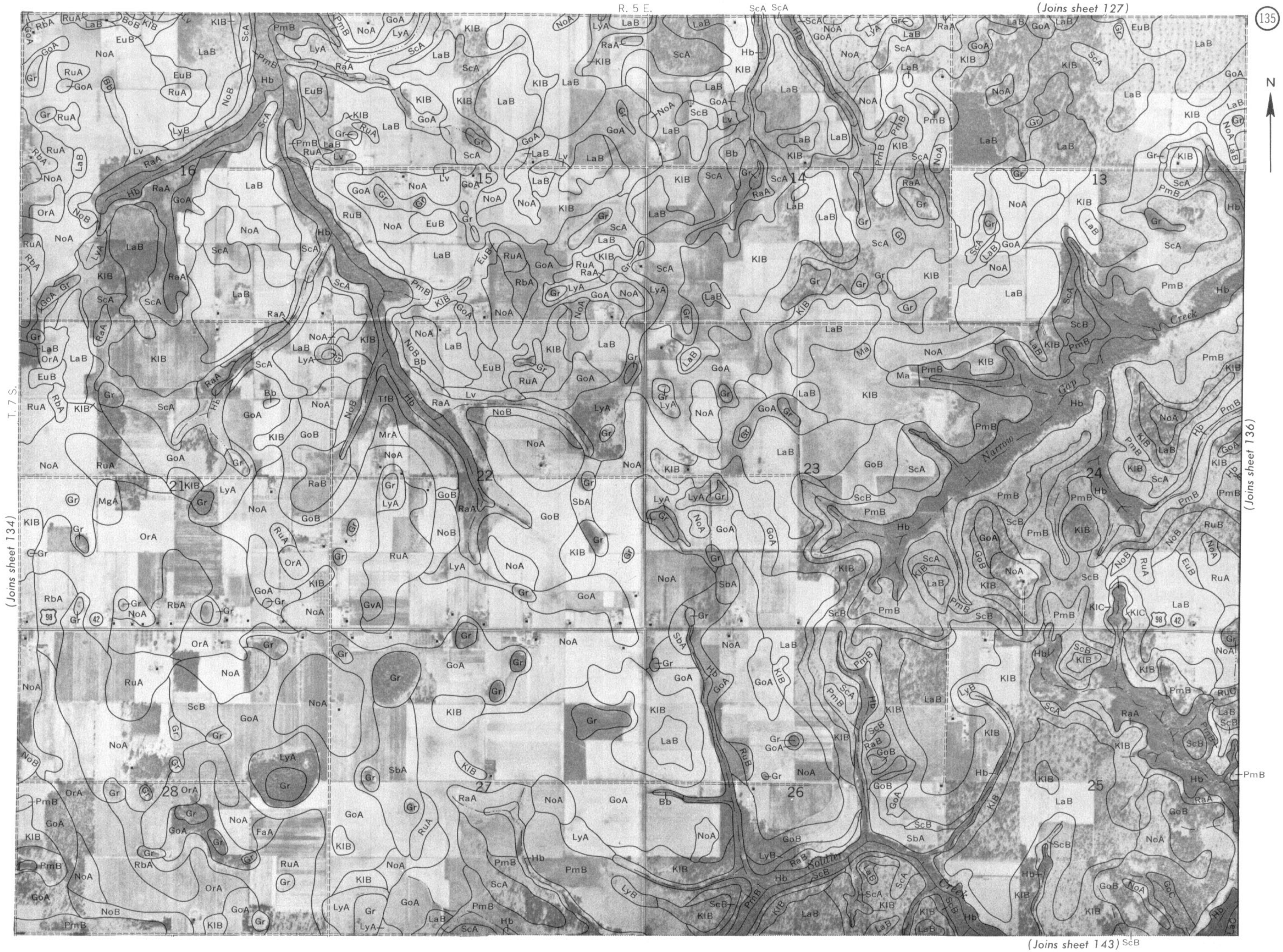

134
(Joins sheet 126)
R. 4 E.
R. 5 E.
N
(Joins sheet 133)
(Joins sheet 135)
T. 7 S.
(Joins sheet 142)
Sandy
Creek
Miflin
Creek
Elberta
14
13
18
17
23
24
19
20
26
25
30
29
98
42
0
½
1 Mile
Scale 1:20 000
0
5000 Feet



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0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

136

(Joins sheet 128)

(Joins sheet 135)

(Joins sheet 137)

(Joins sheet 144)

Scale 1:20 000

0 ½ 1 Mile

0 5000 Feet

R. 6 E. | R. 7 E.

(Joins sheet 129)

137

N

T. 7 S.

(Joins sheet 136)

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

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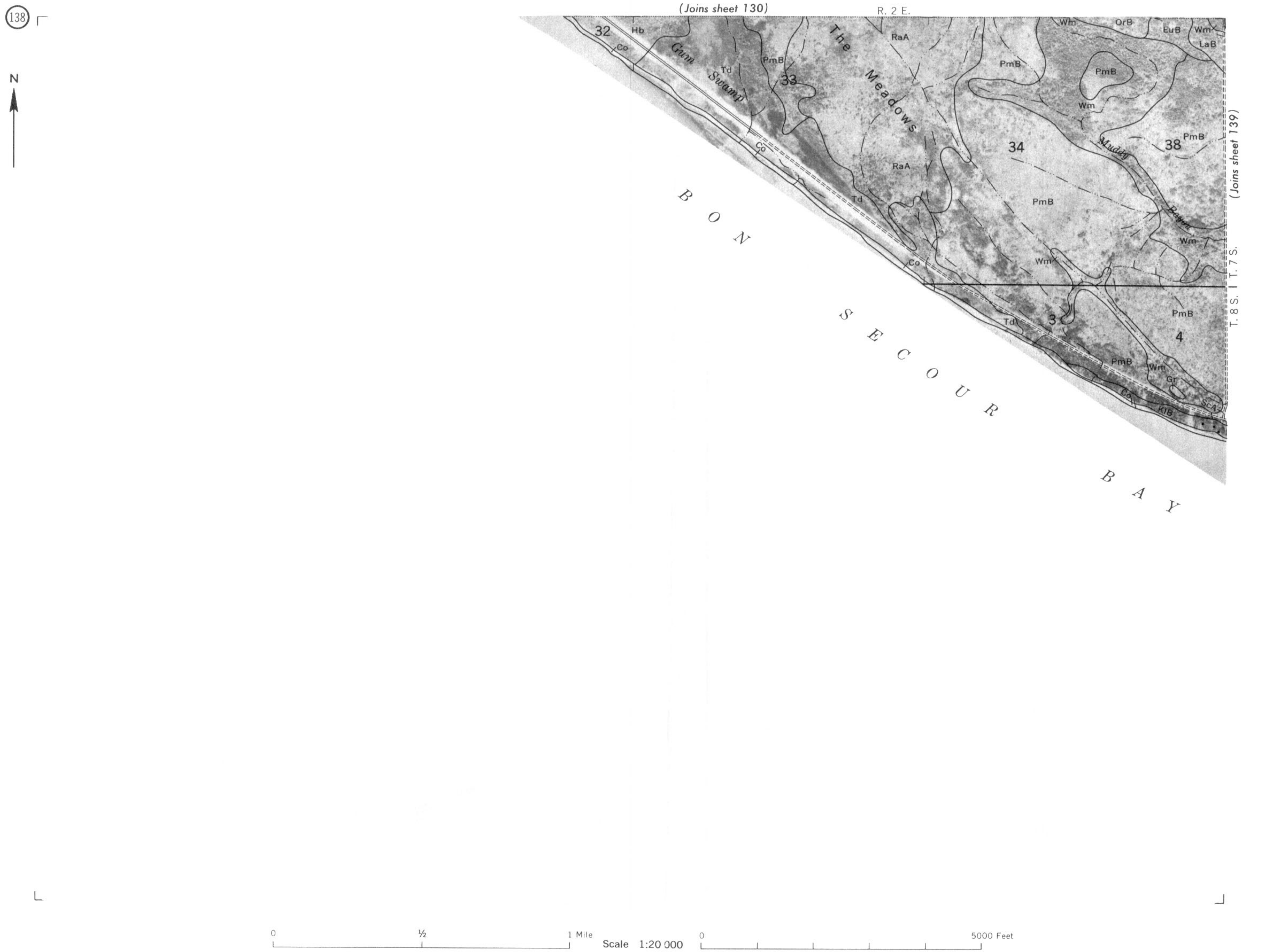
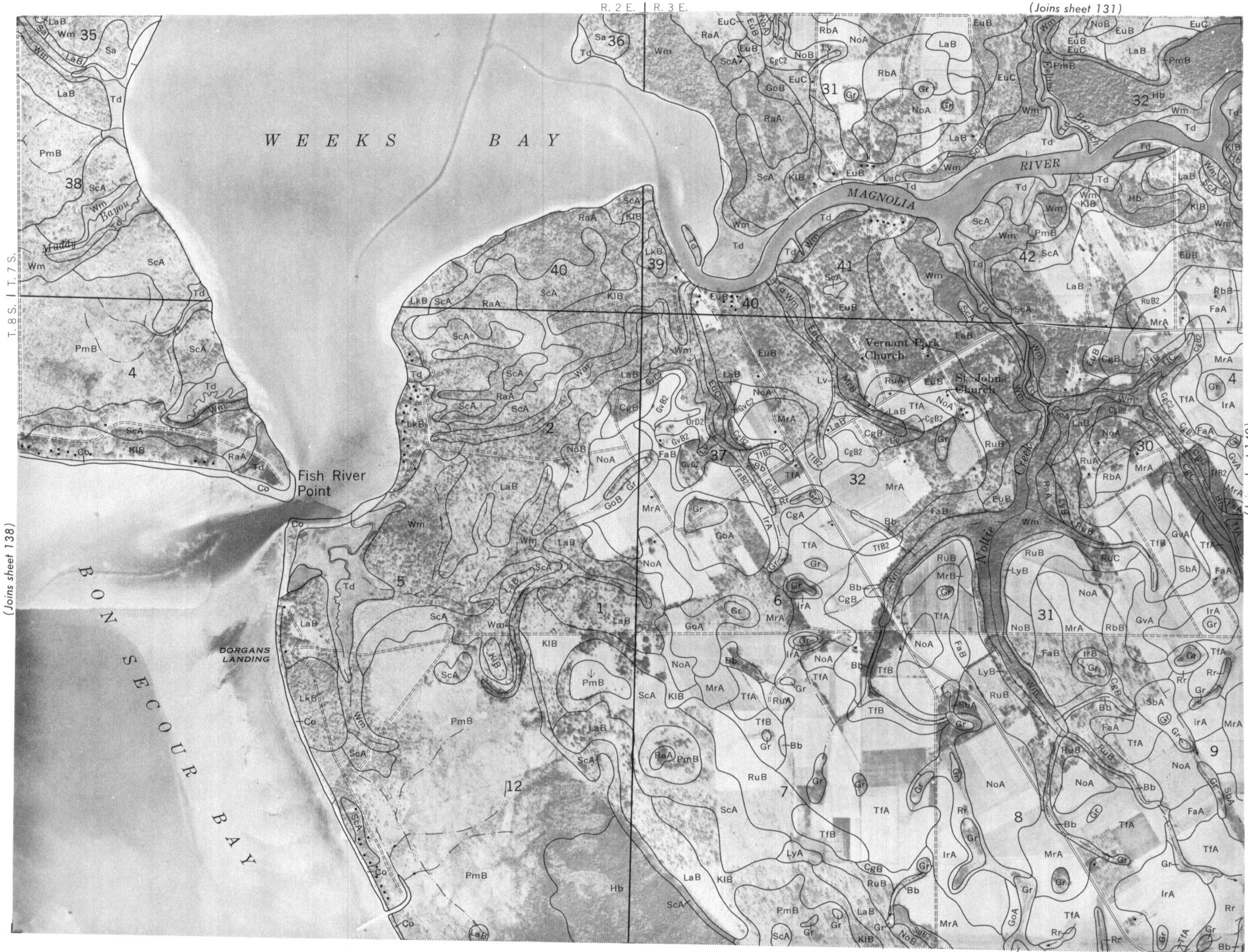

138
N
(Joins sheet 130)
R. 2 E.
(Joins sheet 139)
T. 7 S.
T. 8 S.
32
33
34
38
3
4
Hb
Co
Td
PmB
RaA
Wm
OrB
EuB
LaB
Gr
ScA
KlB
Gum Swamp
The Meadows
Muddy Bayou
BON SECOUR BAY
0
½
1 Mile
Scale 1:20 000
0
5000 Feet



0 ½ 1 Mile
Scale 1:20 000
0 5000 Feet

This map is one of a set compiled in 1963, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.

14

(Joins sheet 9)

(Joins sheet 13)

(Joins sheet 15)

(Joins sheet 19)

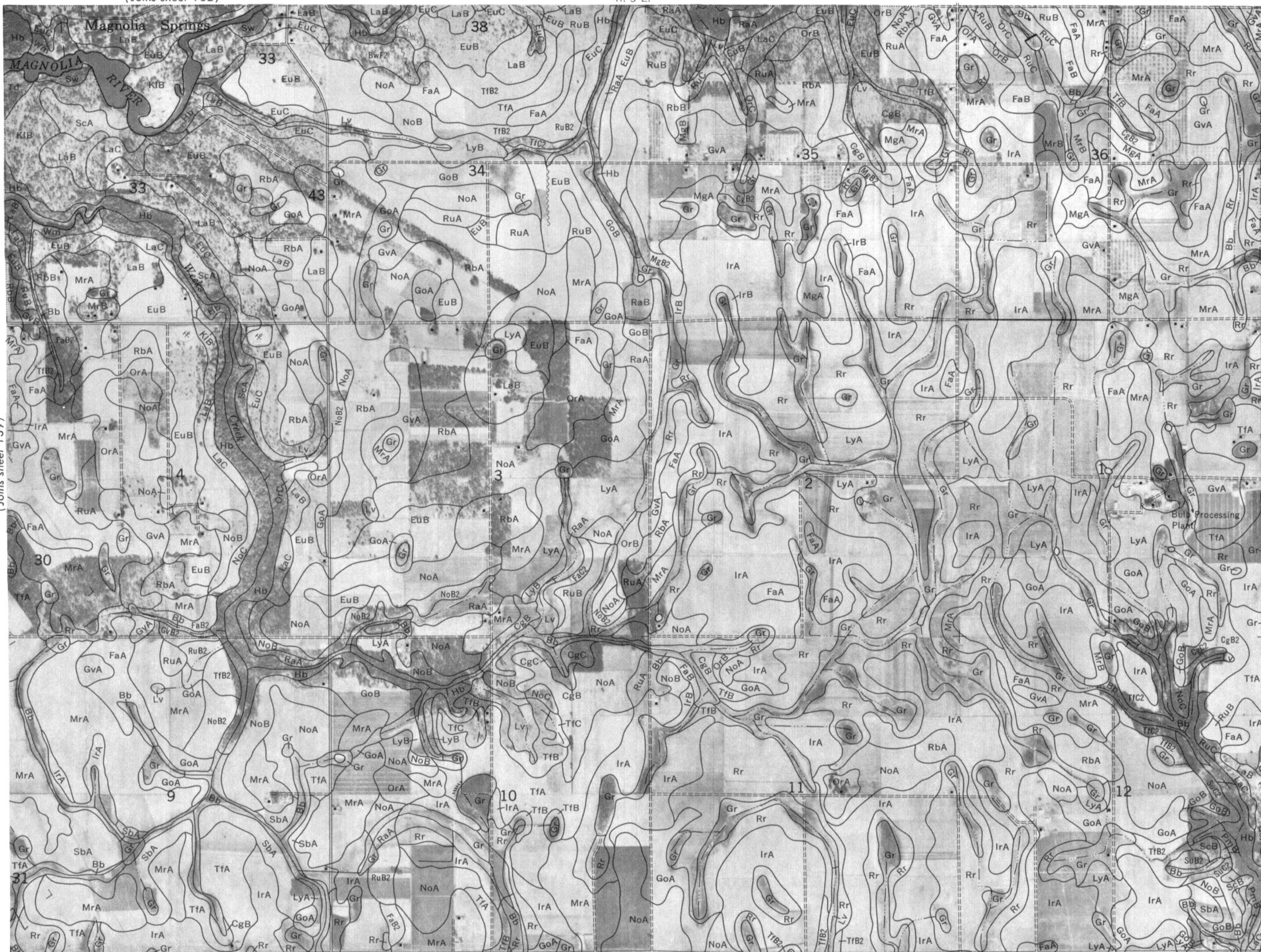
0 ½ 1 Mile Scale 1:20000 0 5000 Feet

140

(Joins sheet 132)

R. 3 E.

(Joins sheet 139)



(Joins sheet 141)

(Joins sheet 146)

0 ½ 1 Mile

Scale 1:20 000

0 5000 Feet

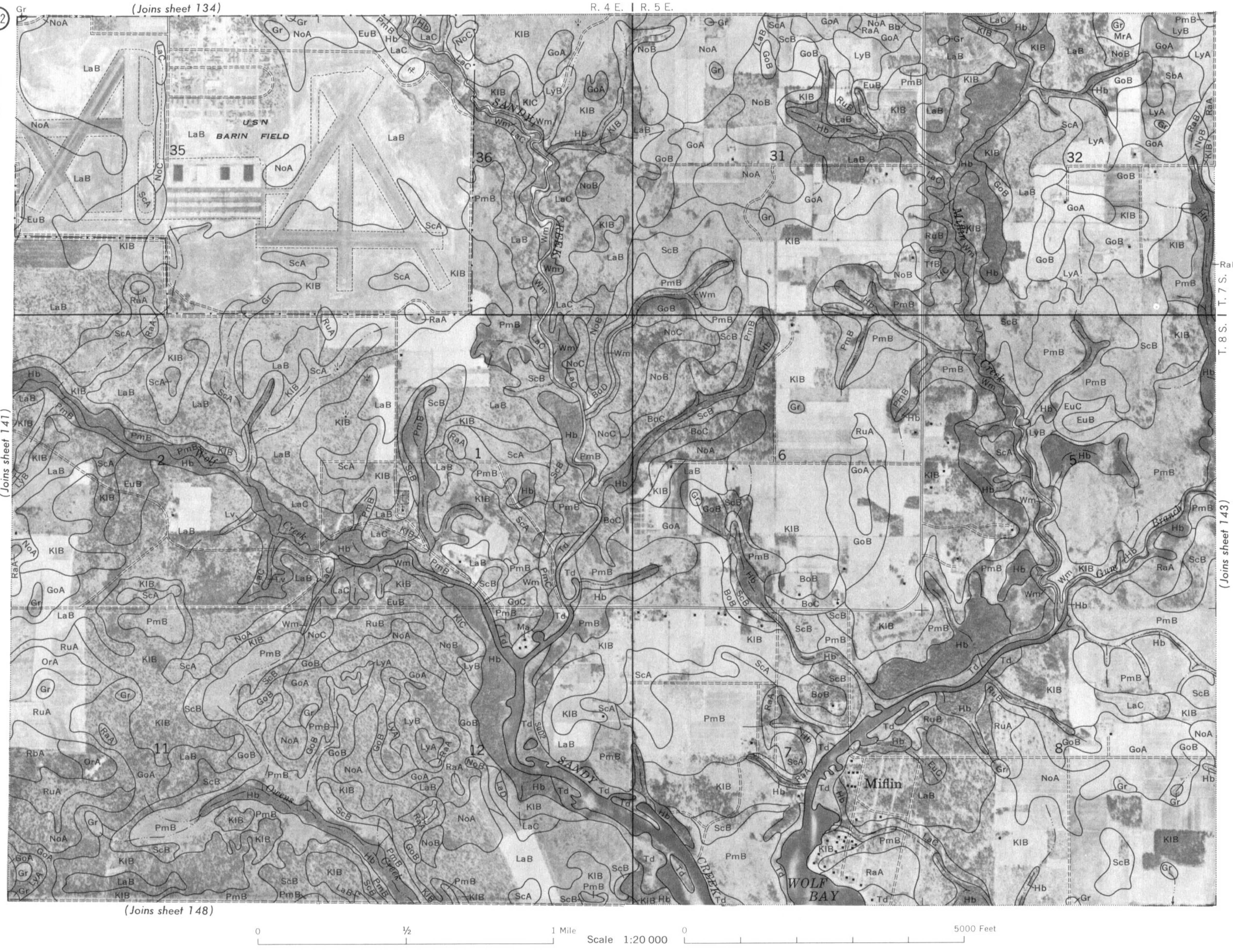
(141)

(Joins sheet 147)

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

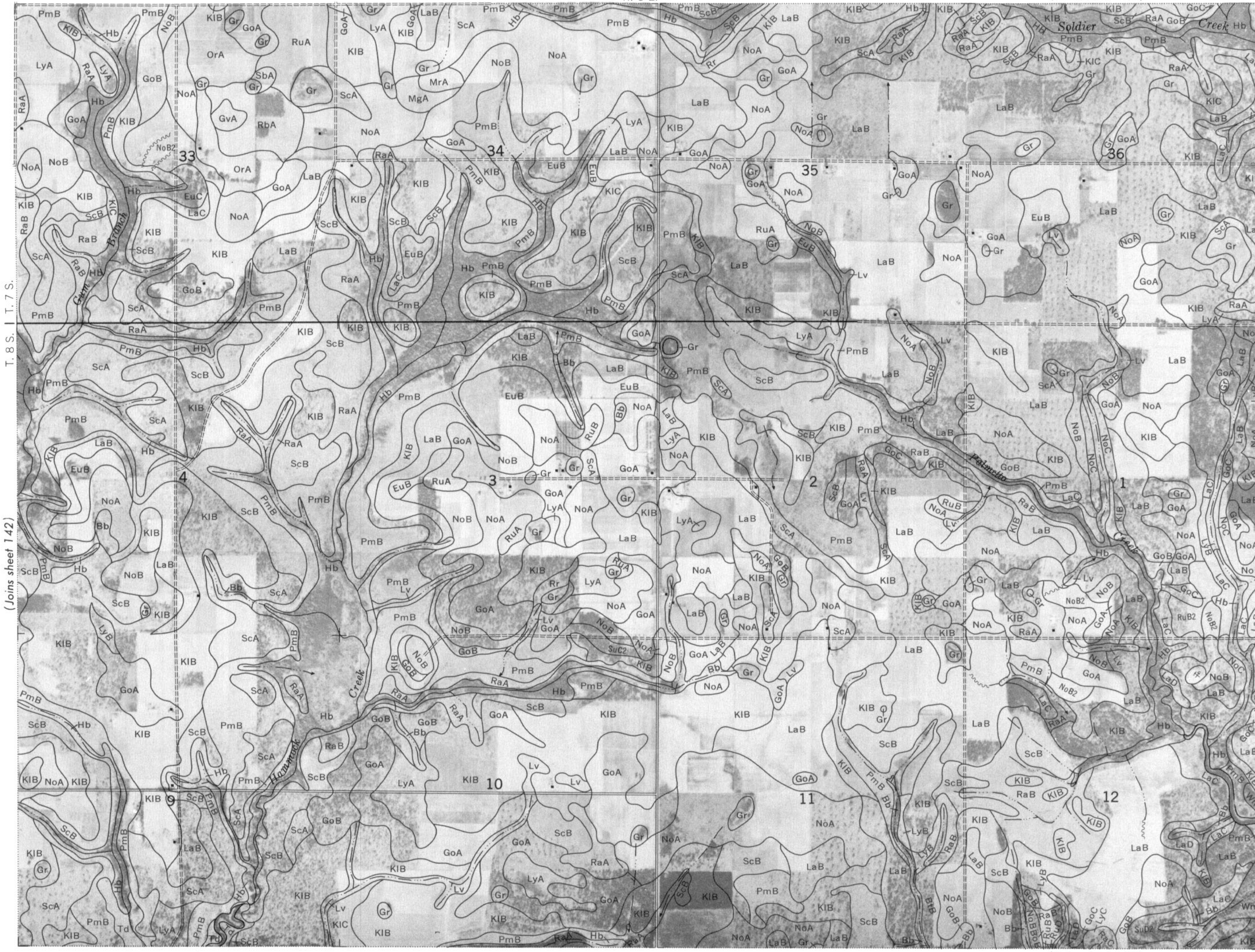
Range, township, and section corners shown on this map are indefinite.

This map is one of a set compiled in 1963, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.


142
(Joins sheet 134)
R. 4 E. | R. 5 E.
N
U S N
BARIN FIELD
SANDY CREEK
Wolf Creek
Mifflin Creek
Gum Branch
Owens Creek
SANDY CREEK
Miflin
WOLF BAY
35
36
31
32
2
1
6
5
11
12
7
8
T. 7 S. | T. 8 S.
(Joins sheet 141)
(Joins sheet 143)
(Joins sheet 148)
0
½
1 Mile
Scale 1:20 000
0
5000 Feet

143

(Joins sheet 135)



(Joins sheet 142)

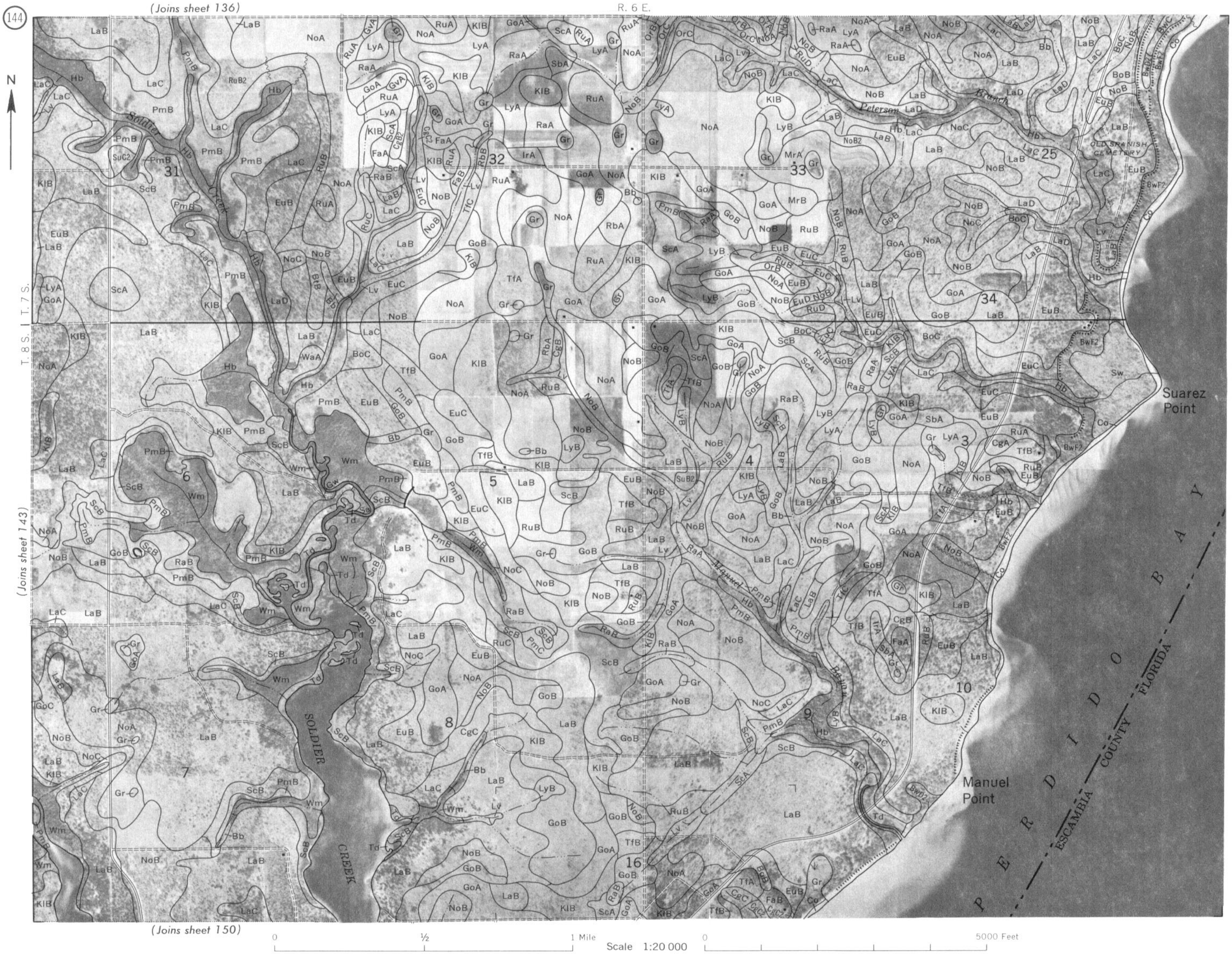
(Joins sheet 144)

(Joins sheet 149)

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

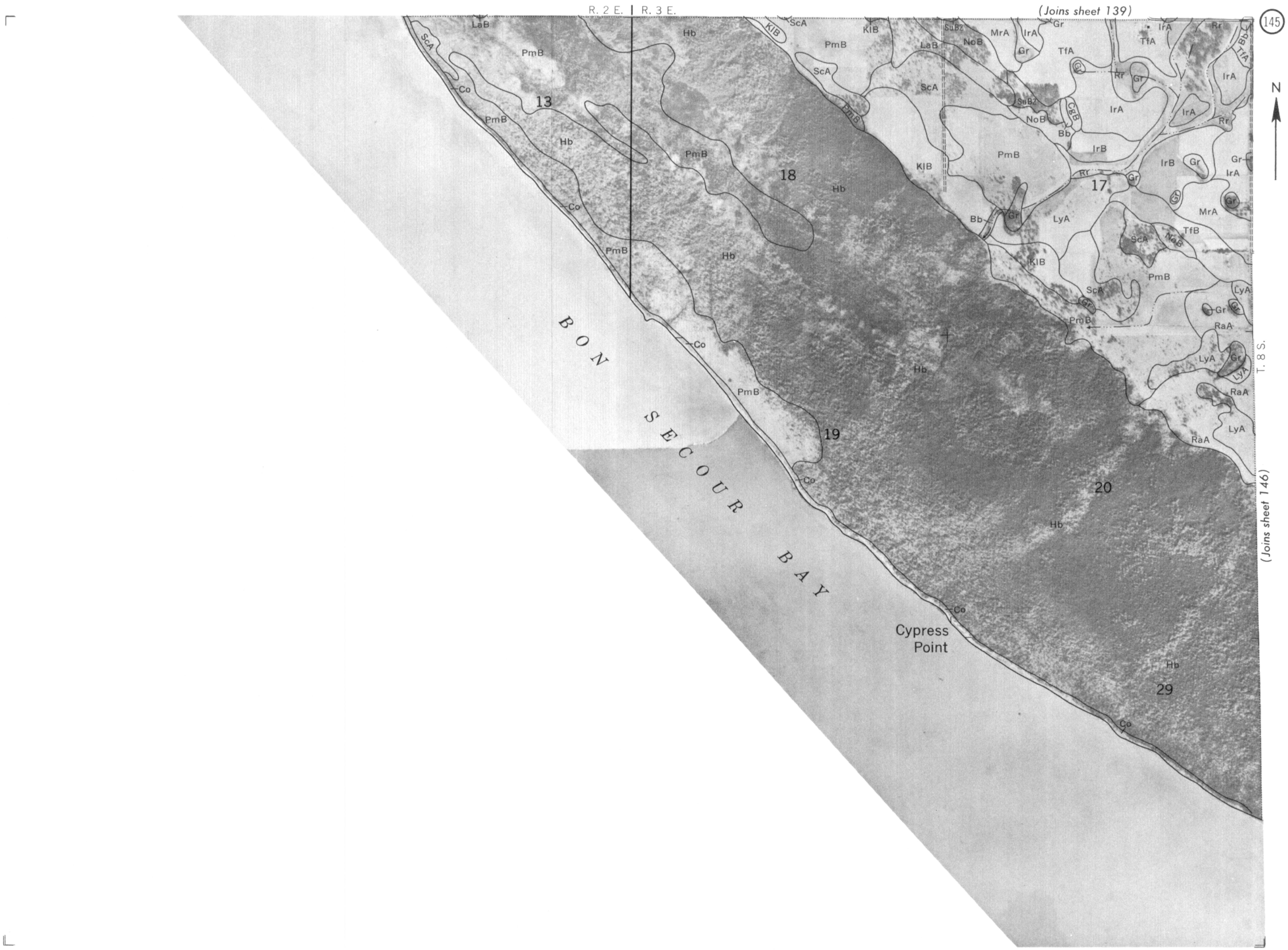
Range, township, and section corners shown on this map are indefinite.

This map is one of a set compiled in 1963, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.


144
(Joins sheet 136)
R. 6 E.
N
T. 7 S.
T. 8 S.
(Joins sheet 143)
(Joins sheet 150)
Soldier Creek
SOLDIER CREEK
Peterson Branch
Manuel
OLD SPANISH CEMETERY
Suarez Point
Manuel Point
PERDIDO BAY
ESCAMBIA COUNTY
FLORIDA
31
32
33
34
25
6
5
4
3
7
8
9
10
16
0
½
1 Mile
Scale 1:20 000
0
5000 Feet

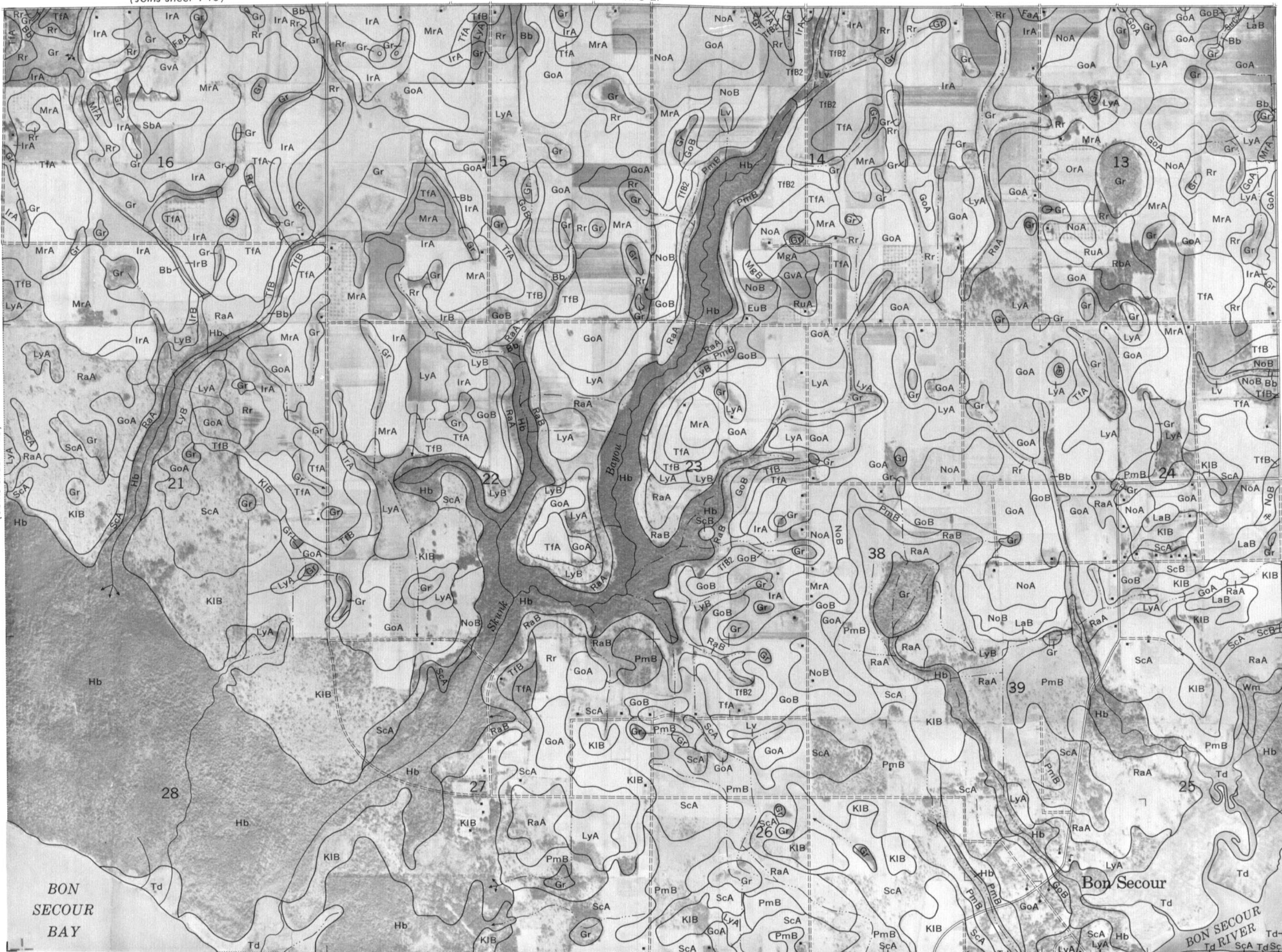
This map is one of a set compiled in 1963, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.



0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

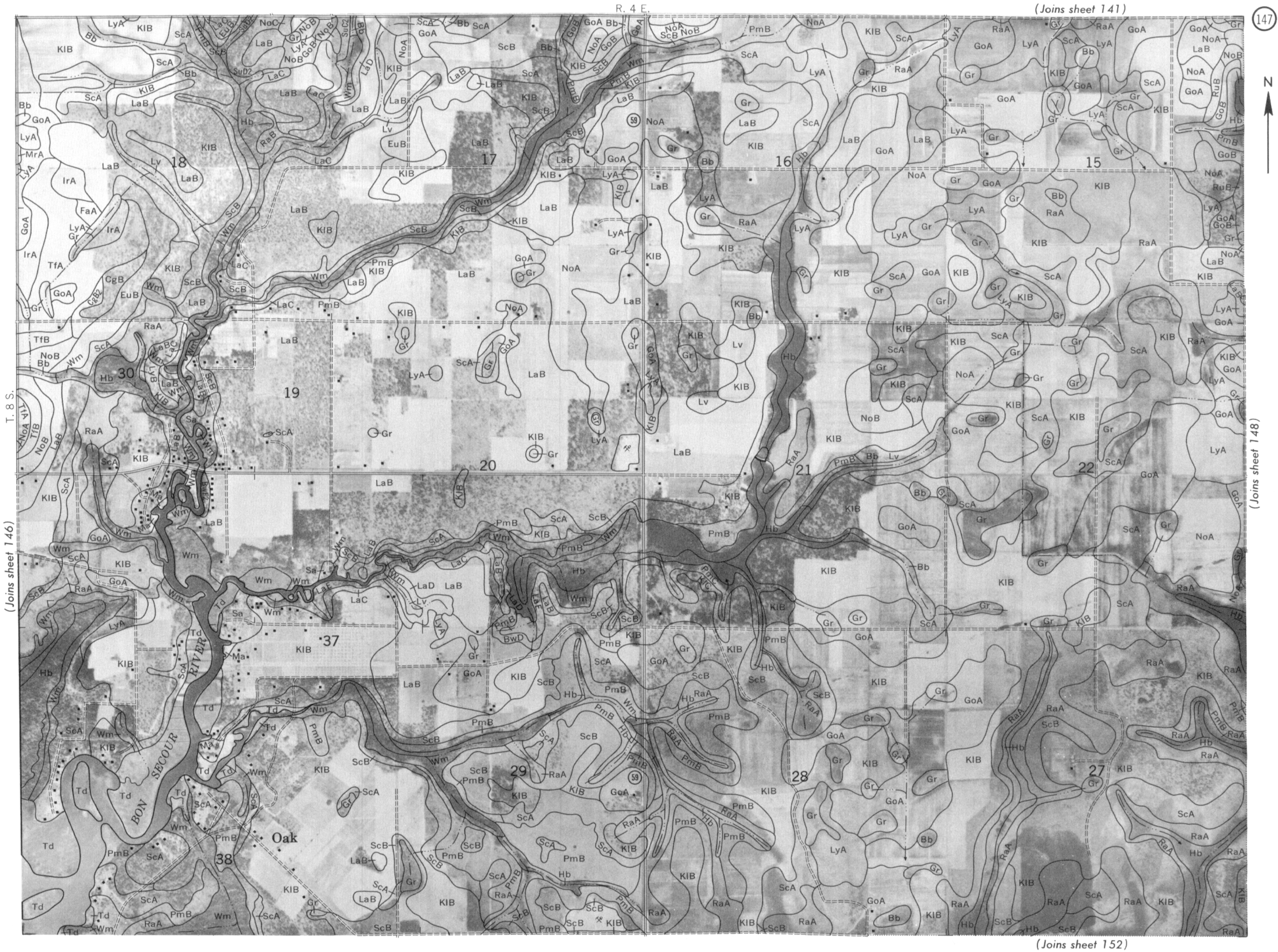
146



0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

This map is one of a set compiled in 1963, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

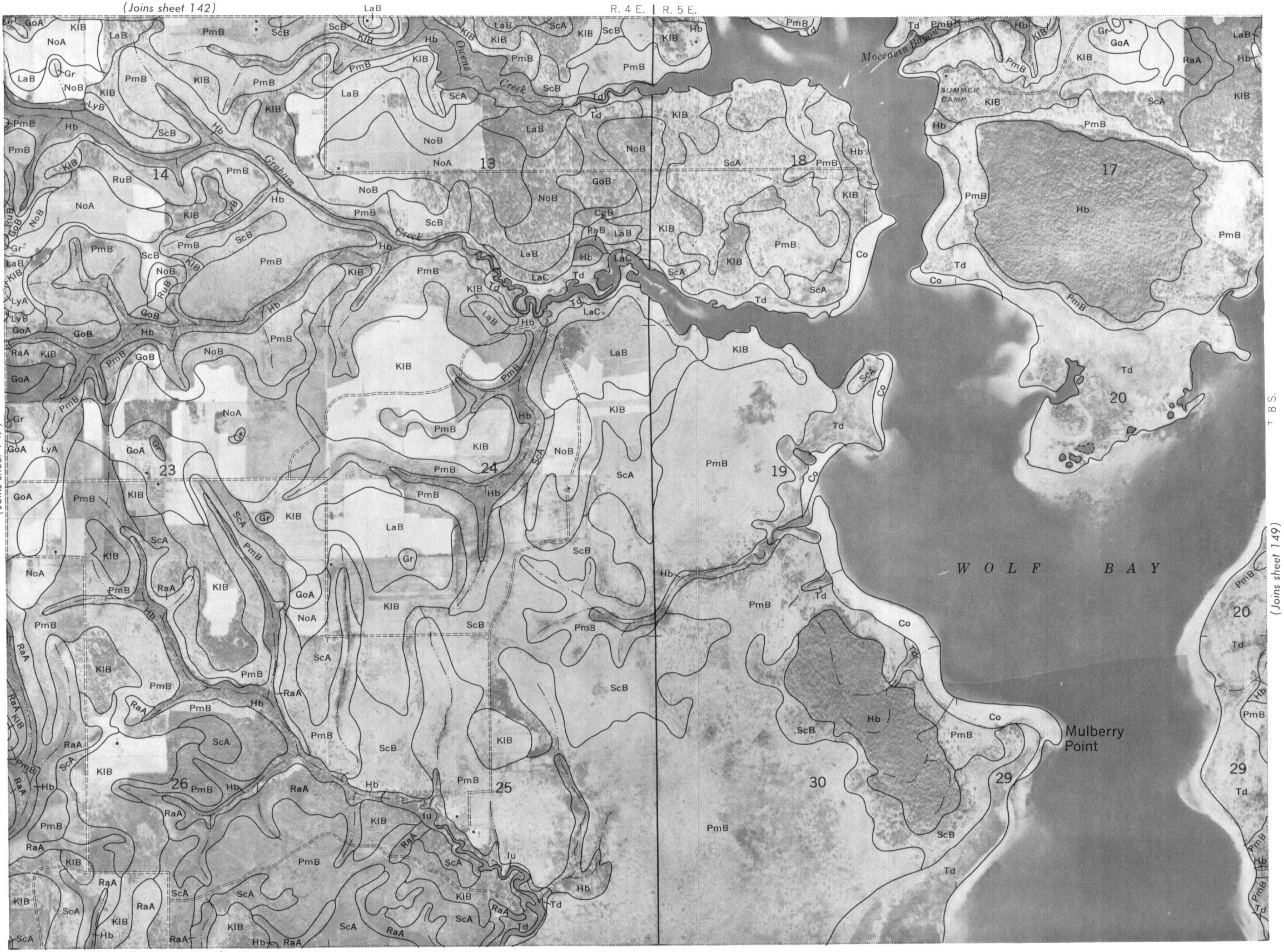
Range, township, and section corners shown on this map are indefinite.



0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

148

(Joins sheet 142)



(Joins sheet 153)

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

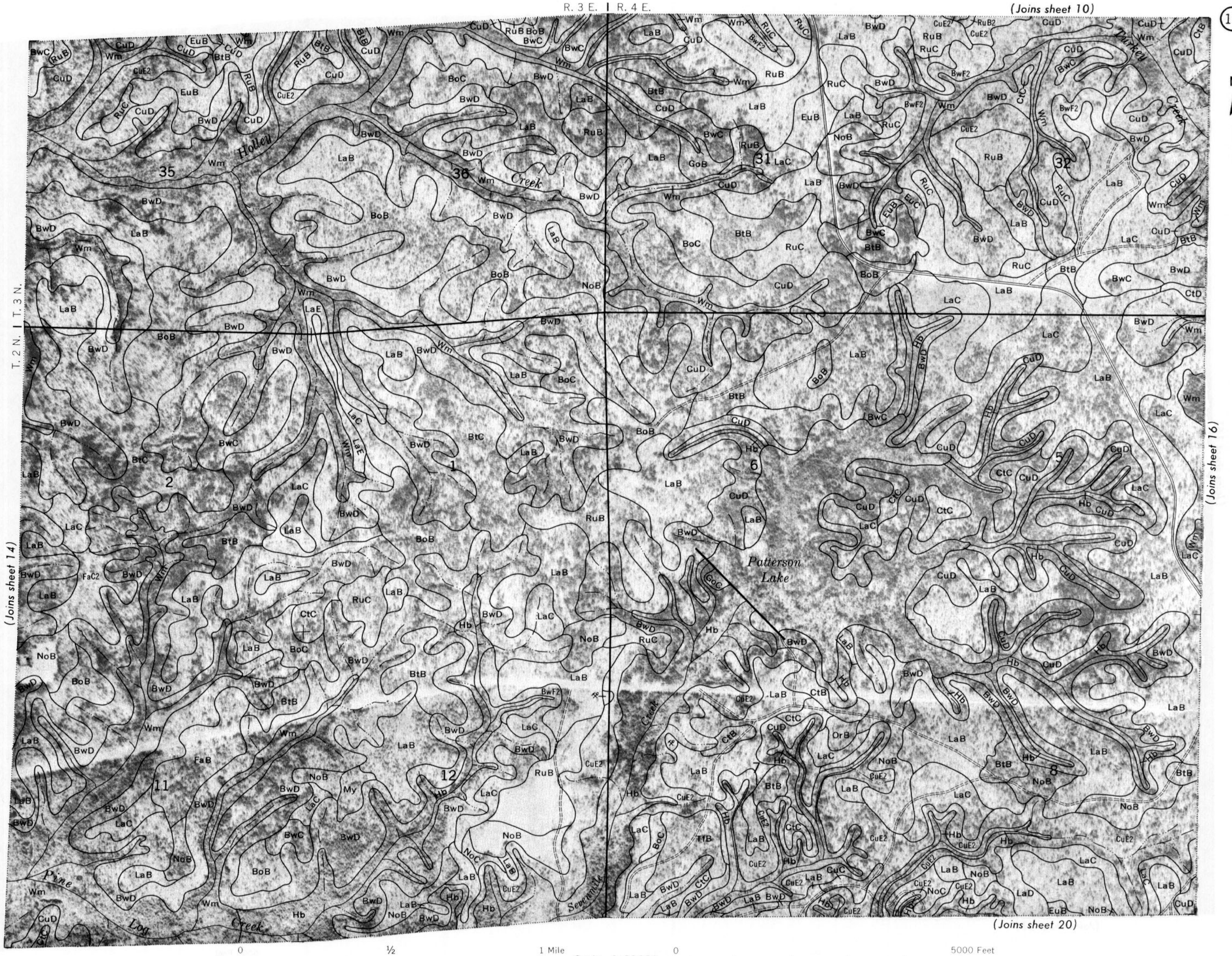
This map is one of a set compiled in 1963, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.

0 ½ 1 Mile

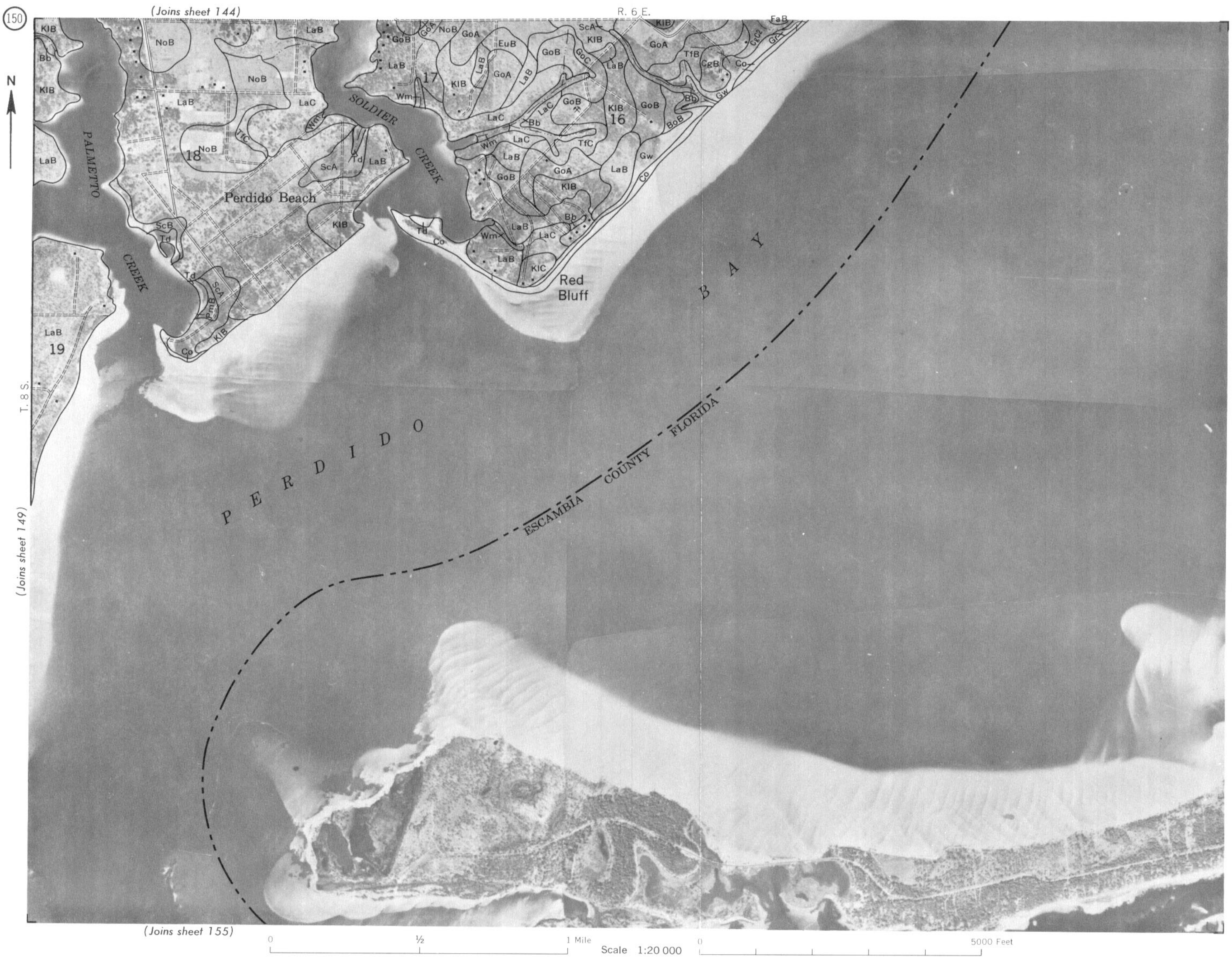
Scale 1:20 000

0 5000 Feet



This map is one of a set compiled in 1962, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.

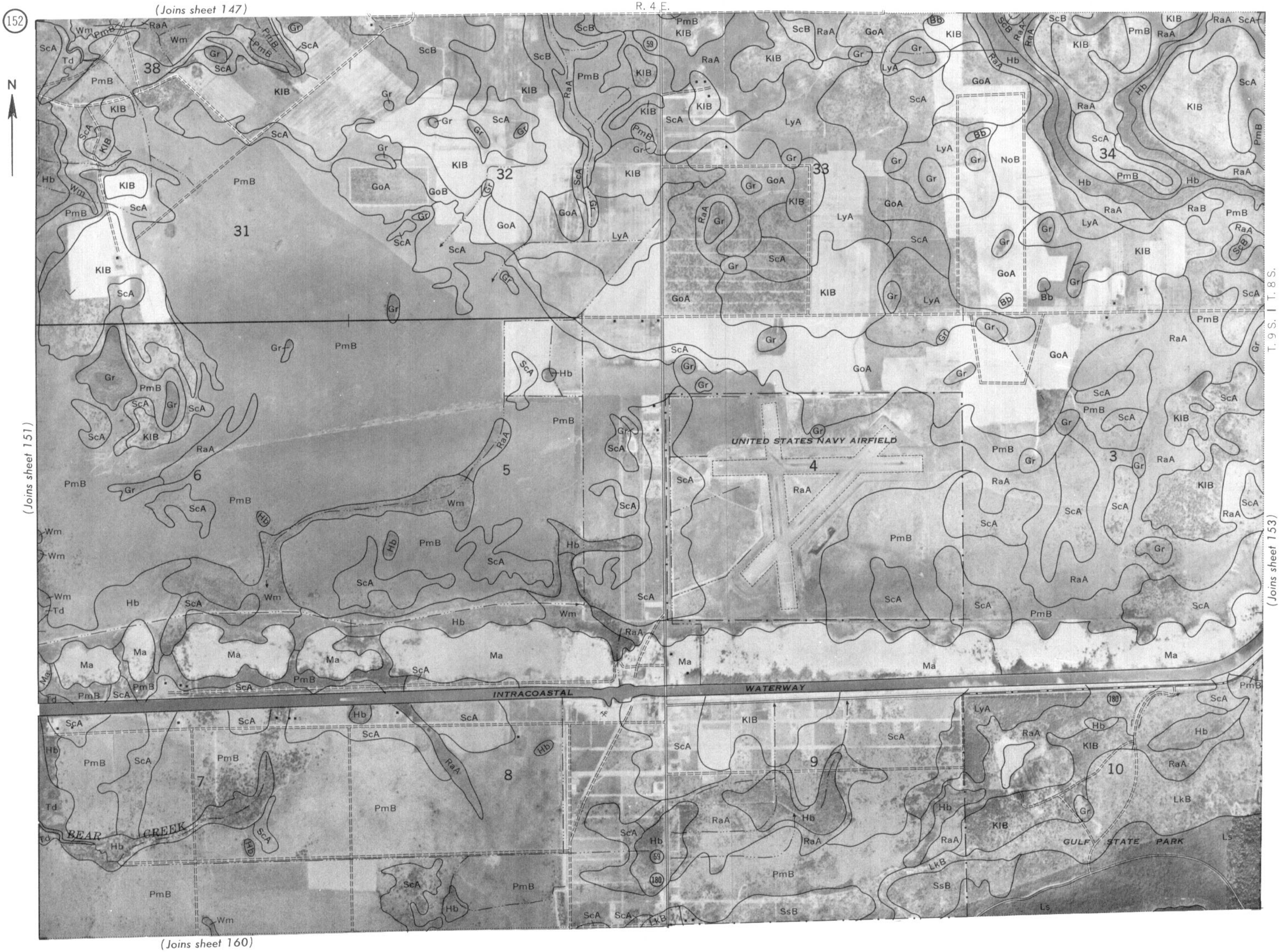


Scale 1:20 000

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

This map is one of a set compiled in 1963, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

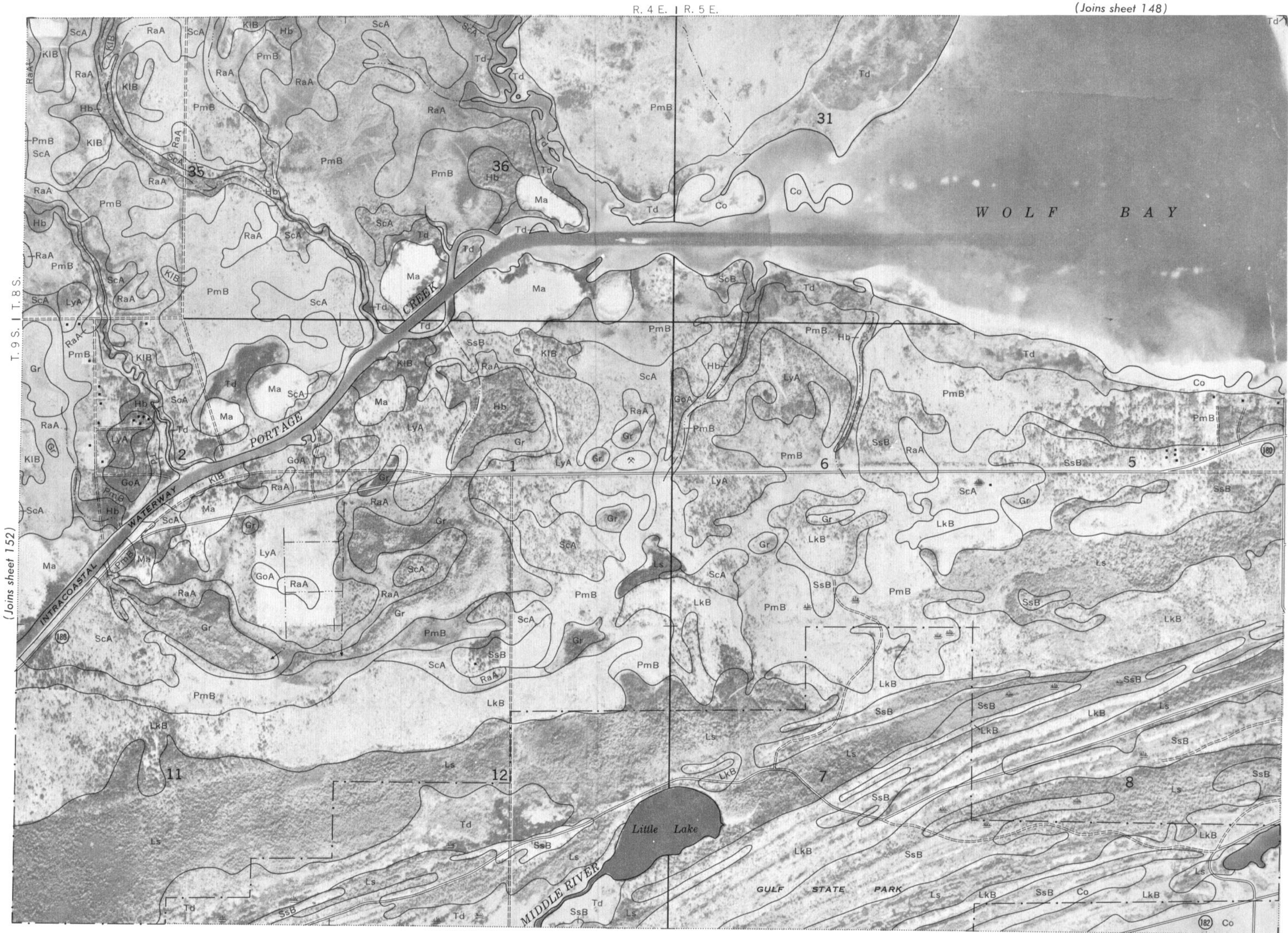
Range, township, and section corners shown on this map are indefinite.



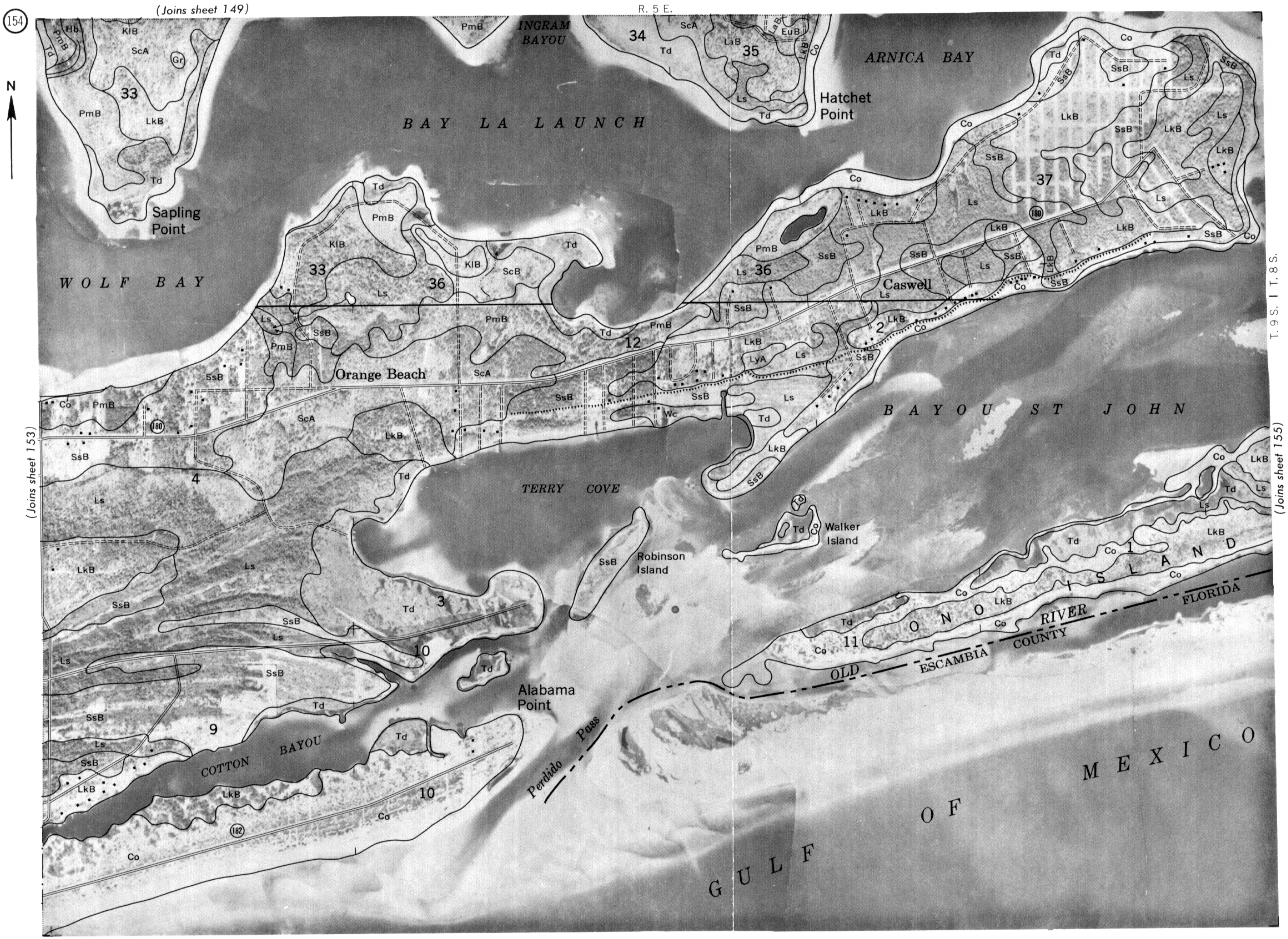
0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

This map is one of a set compiled in 1963, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.



0 ½ 1 Mile Scale 1:20 000 0 5000 Feet



0 ½ 1 Mile

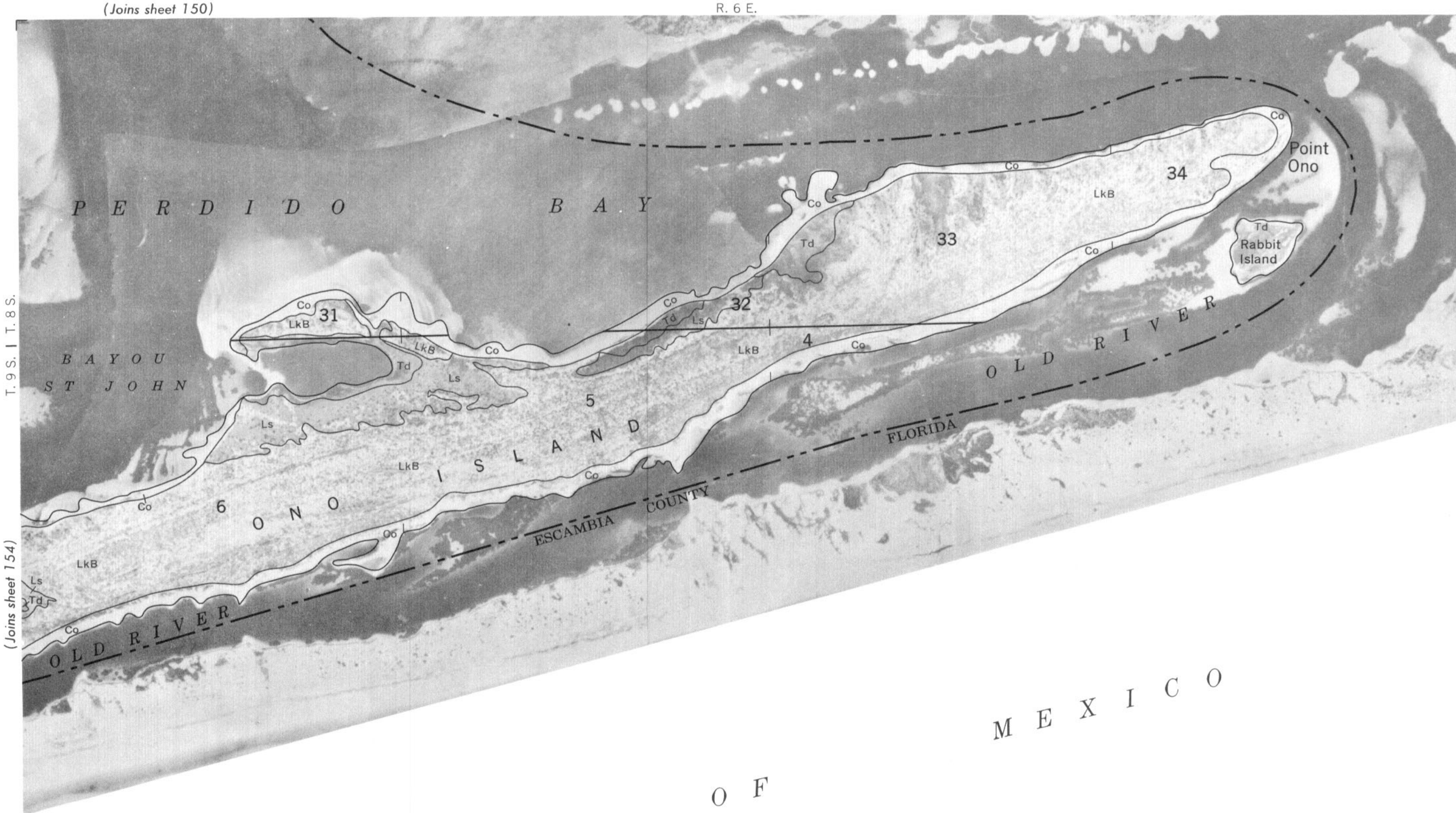
Scale 1:20 000

0 5000 Feet

(Joins sheet 150)

R. 6 E.

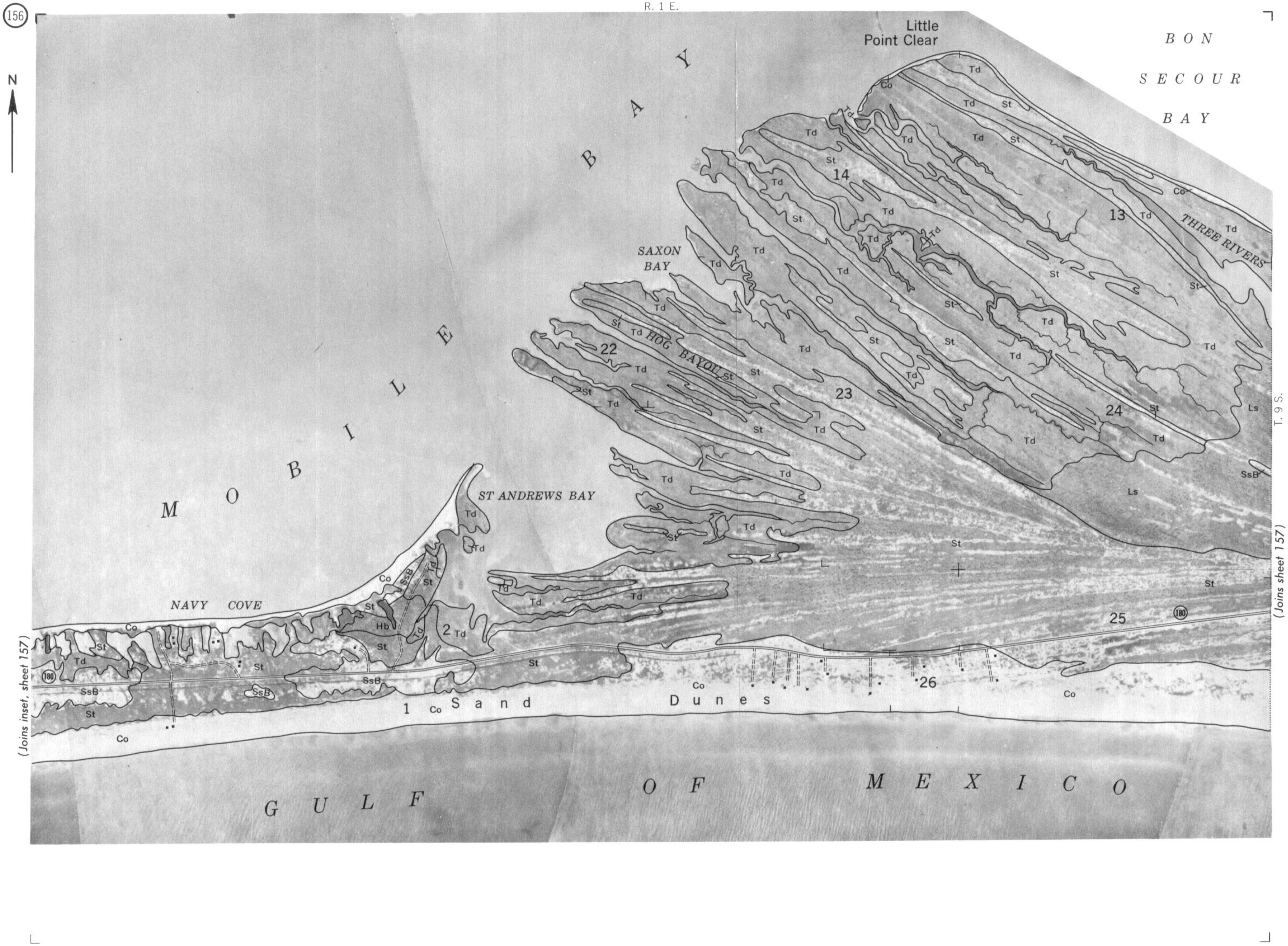
155



0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

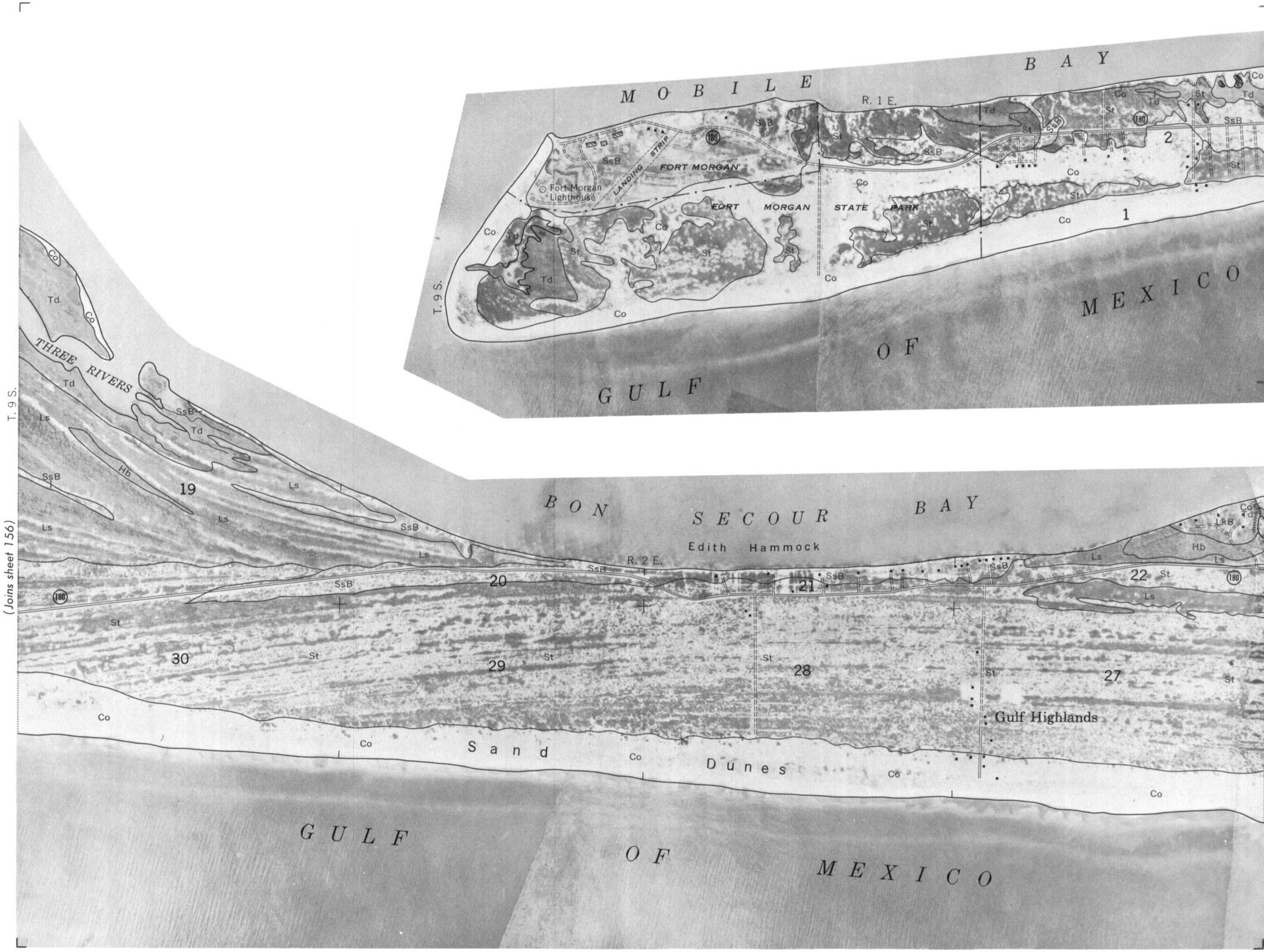
This map is one of a set compiled in 1963, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.



0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

157



0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

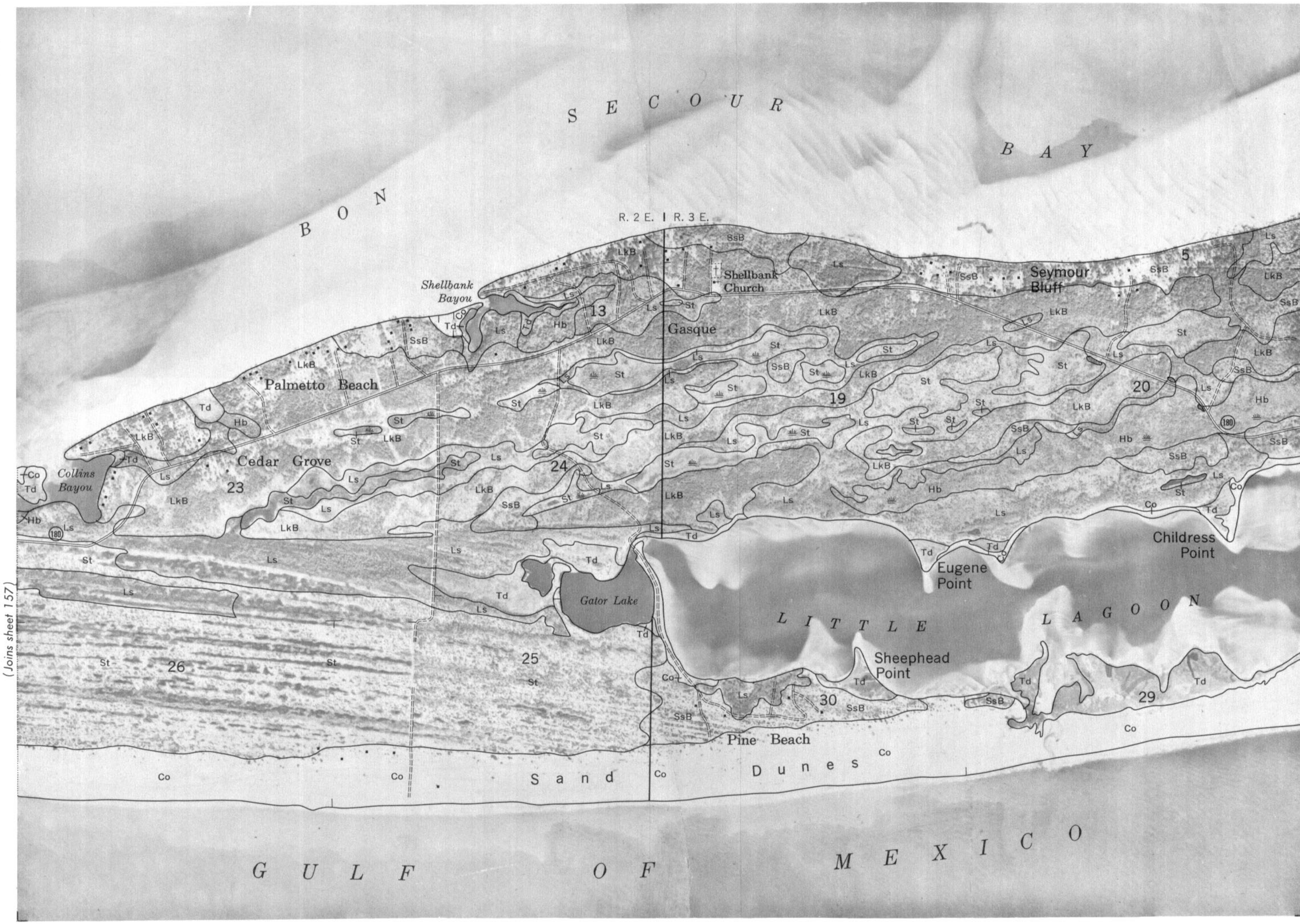
This map is one of a set compiled in 1963, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.

158

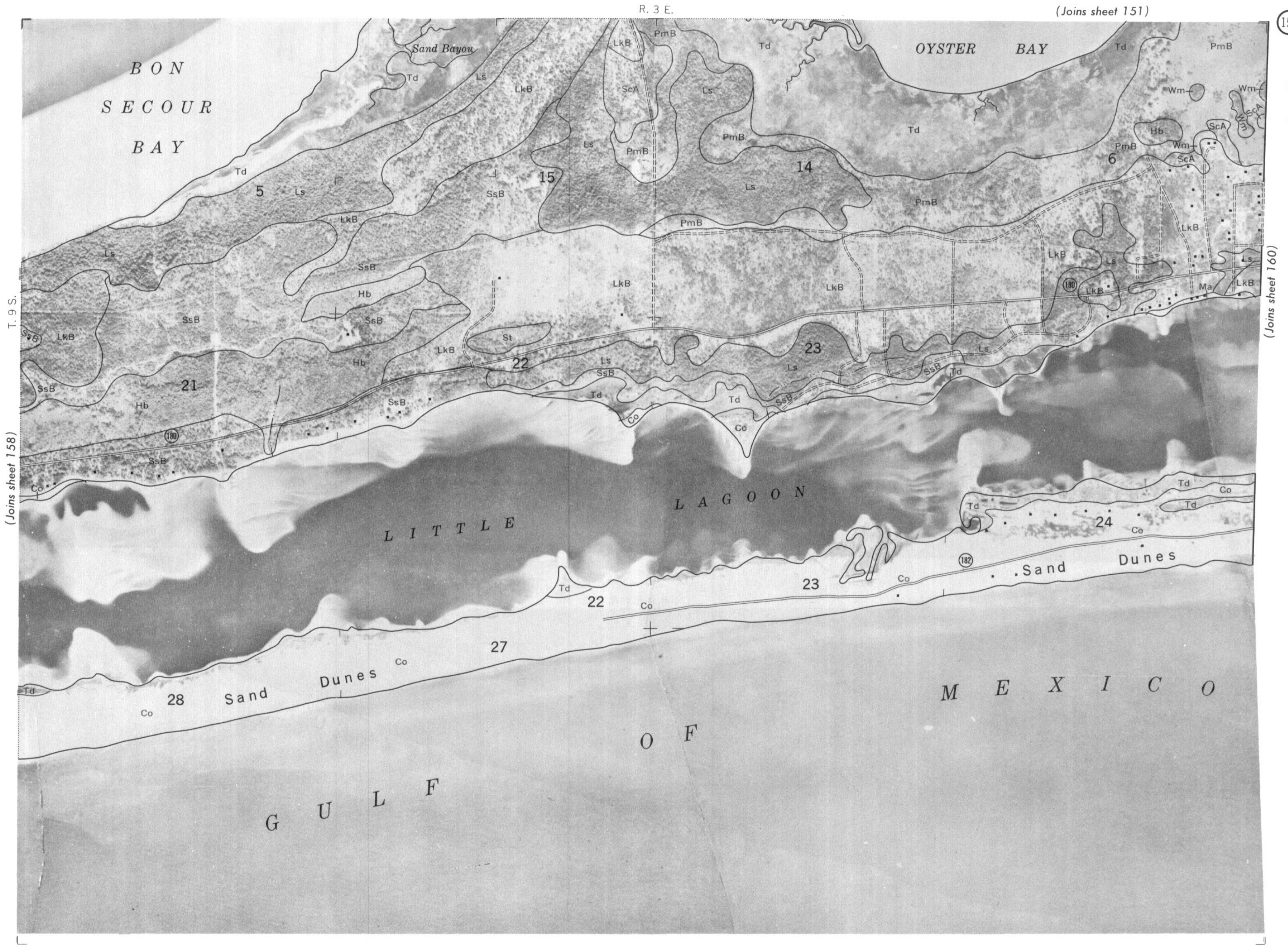
N

(Joins sheet 157)



(Joins sheet 159)

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

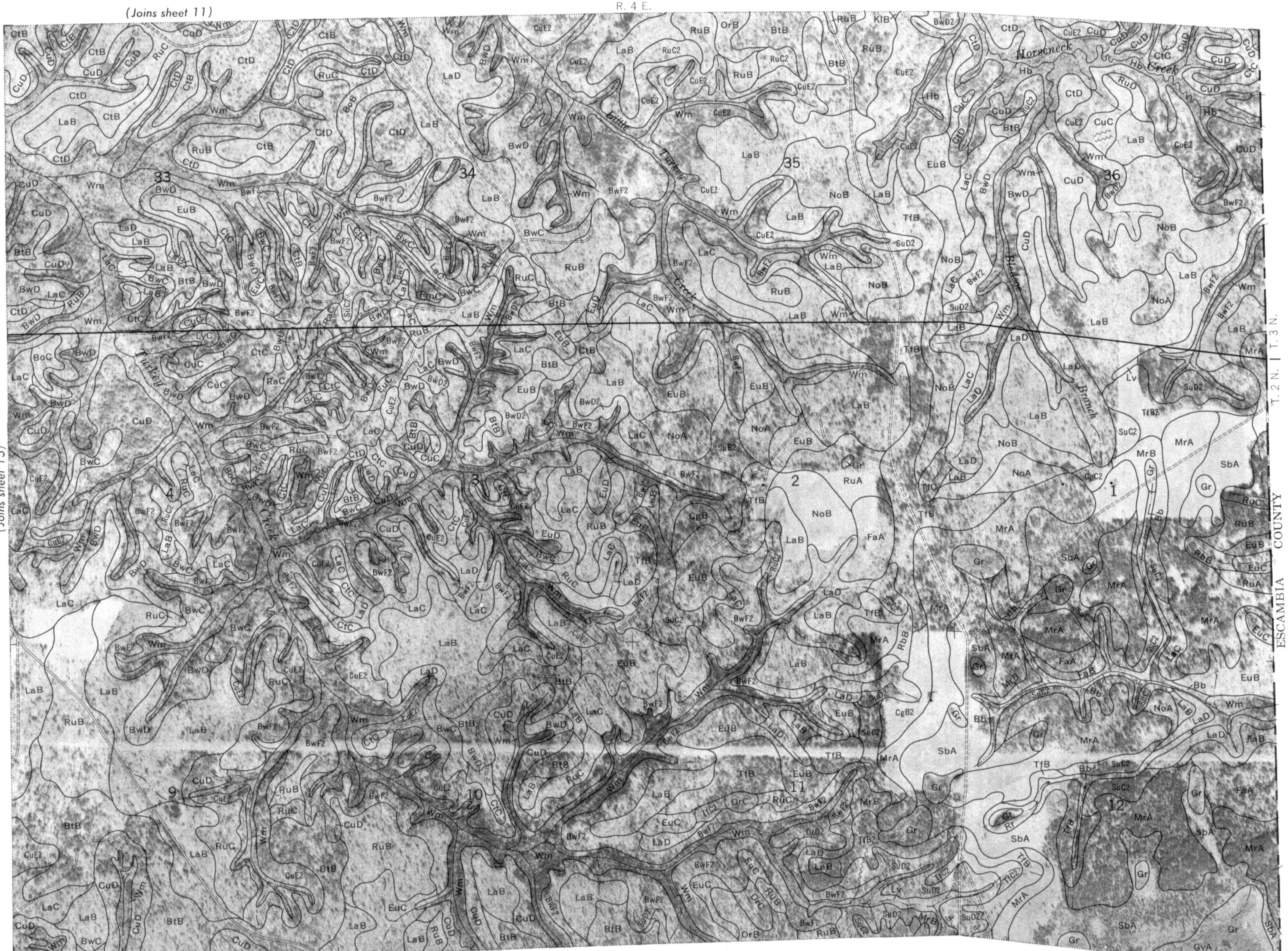


This map is one of a set compiled in 1963, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

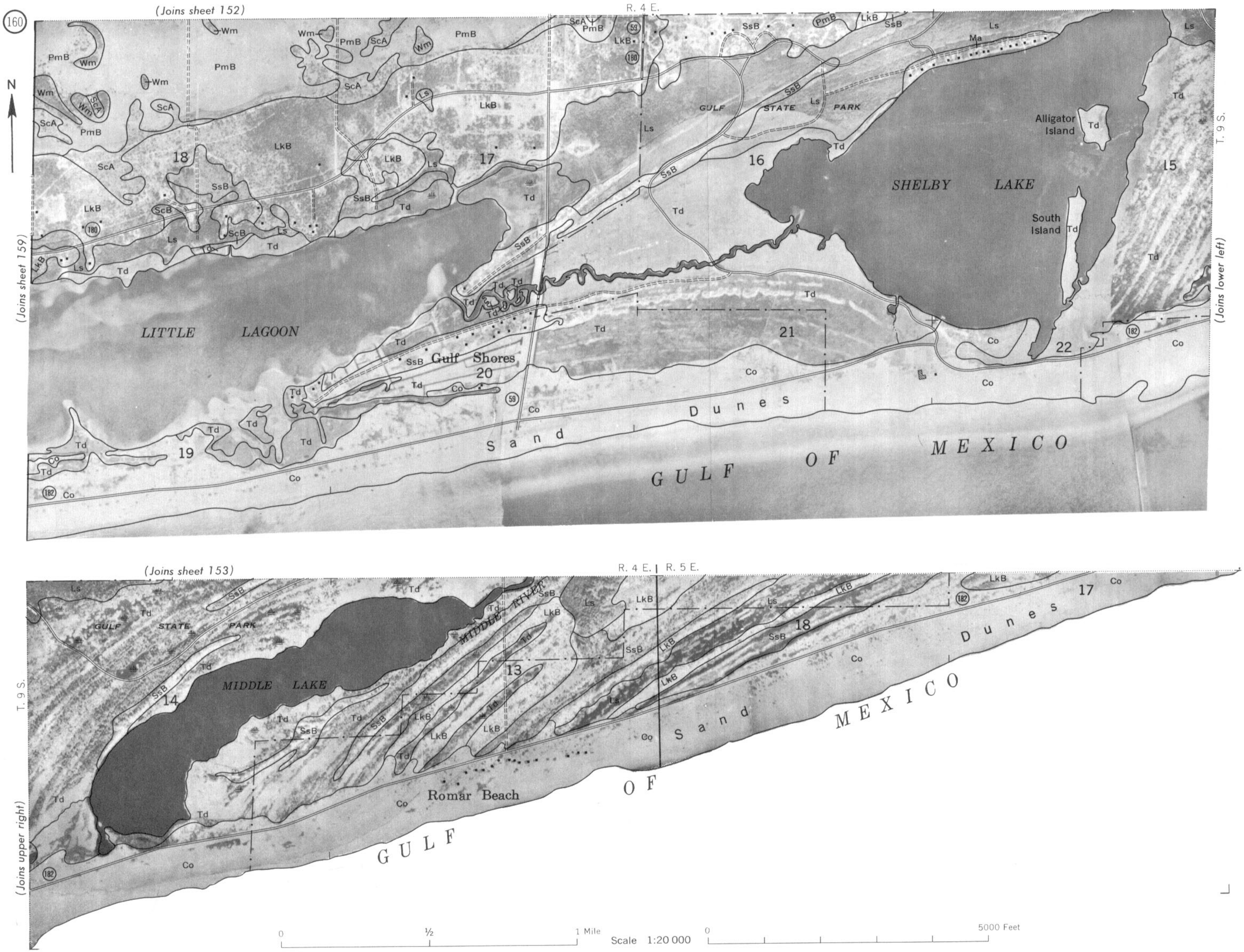
Range, township, and section corners shown on this map are indefinite.

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

16

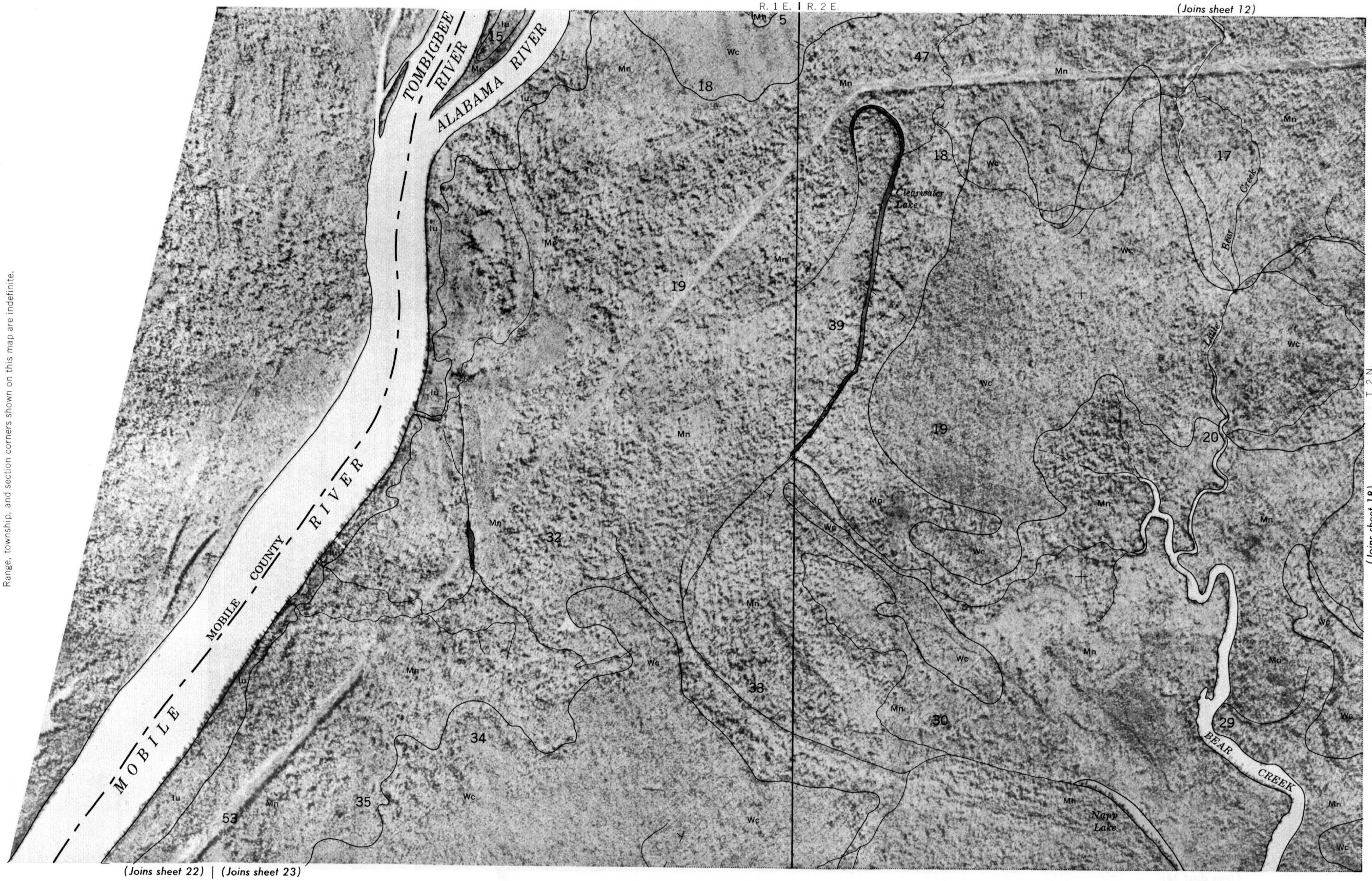


0 ½ 1 Mile
Scale 1:20 000
0 5000 Feet


160
(Joins sheet 152)
R. 4 E.
N
(Joins sheet 159)
(Joins lower left)
T. 9 S.
GULF STATE PARK
SHELBY LAKE
Alligator Island
South Island
LITTLE LAGOON
Gulf Shores
Sand Dunes
GULF OF MEXICO
18
17
16
15
19
20
21
22
(Joins sheet 153)
R. 4 E.
R. 5 E.
MIDDLE LAKE
MIDDLE RIVER
Romar Beach
(Joins upper right)
14
13
18
17
Scale 1:20 000
0
½
1 Mile
5000 Feet

This map is one of a set compiled in 1962, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.



0 ½ 1 Mile

Scale 1:20 000

0 5000 Feet

18

(Joins sheet 13)

R. 2 E.

N

(Joins sheet 17)

T. 2 N.

(Joins sheet 19)

(Joins sheet 24)

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

This map is one of a set compiled in 1962, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.

0 ½ 1 Mile Scale 1:20000 0 5000 Feet

2

N

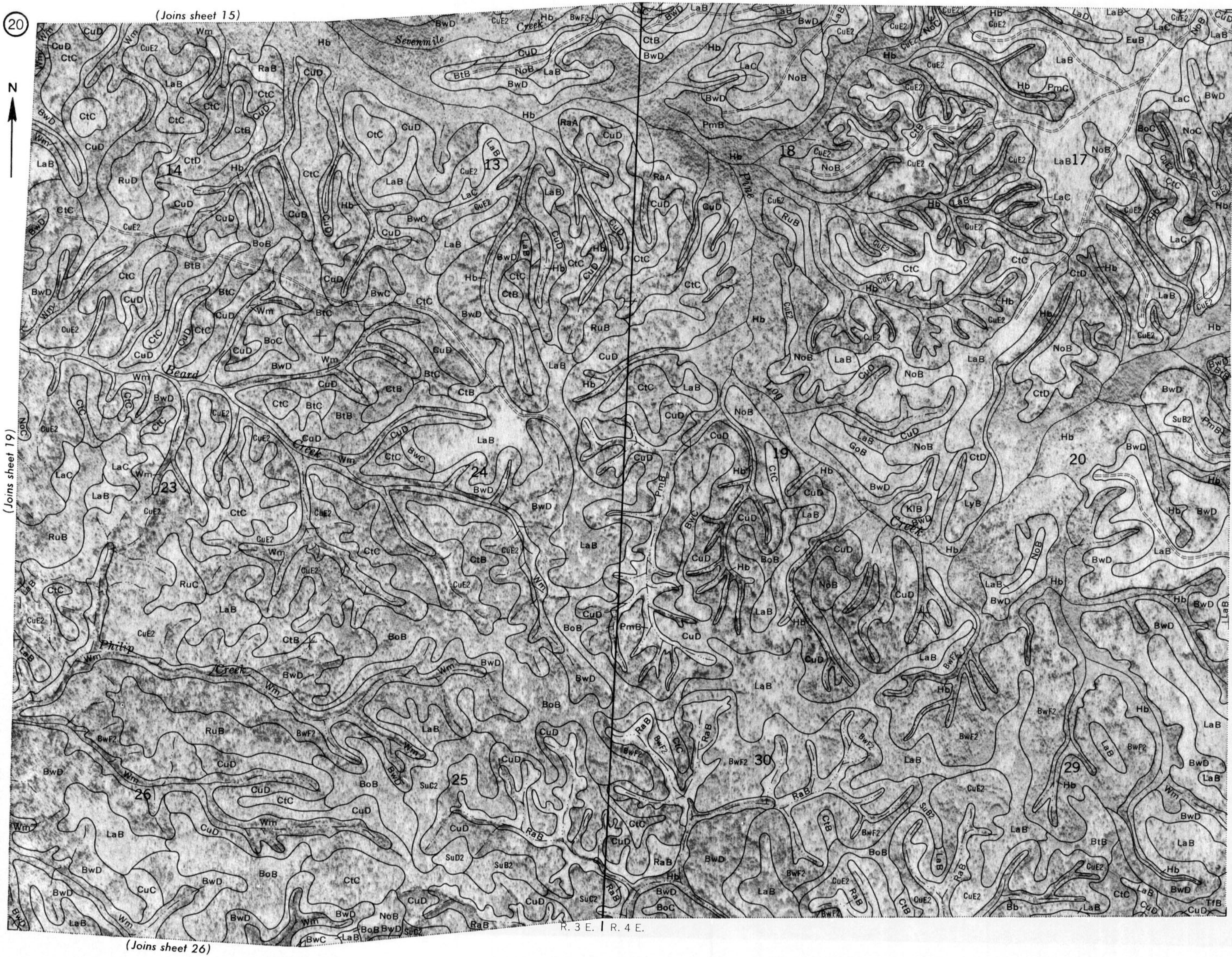
(Joins sheet 1)

(Joins sheet 5)

0 ½ 1 Mile

Scale 1:20000

0 5000 Feet



0 ½ 1 Mile

Scale 1:20 000

0 5000 Feet

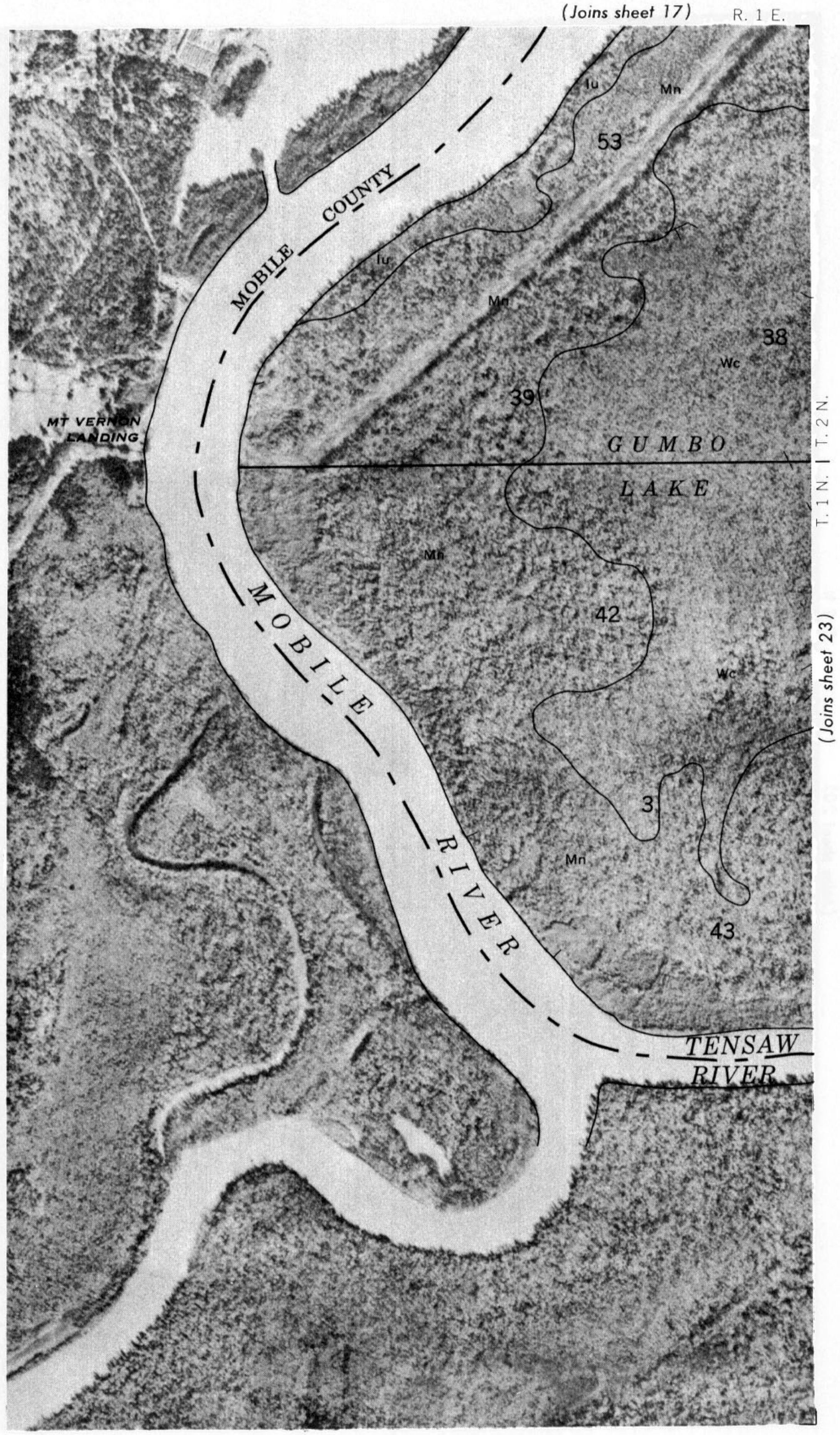
0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

This map is one of a set compiled in 1962, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.

22

N

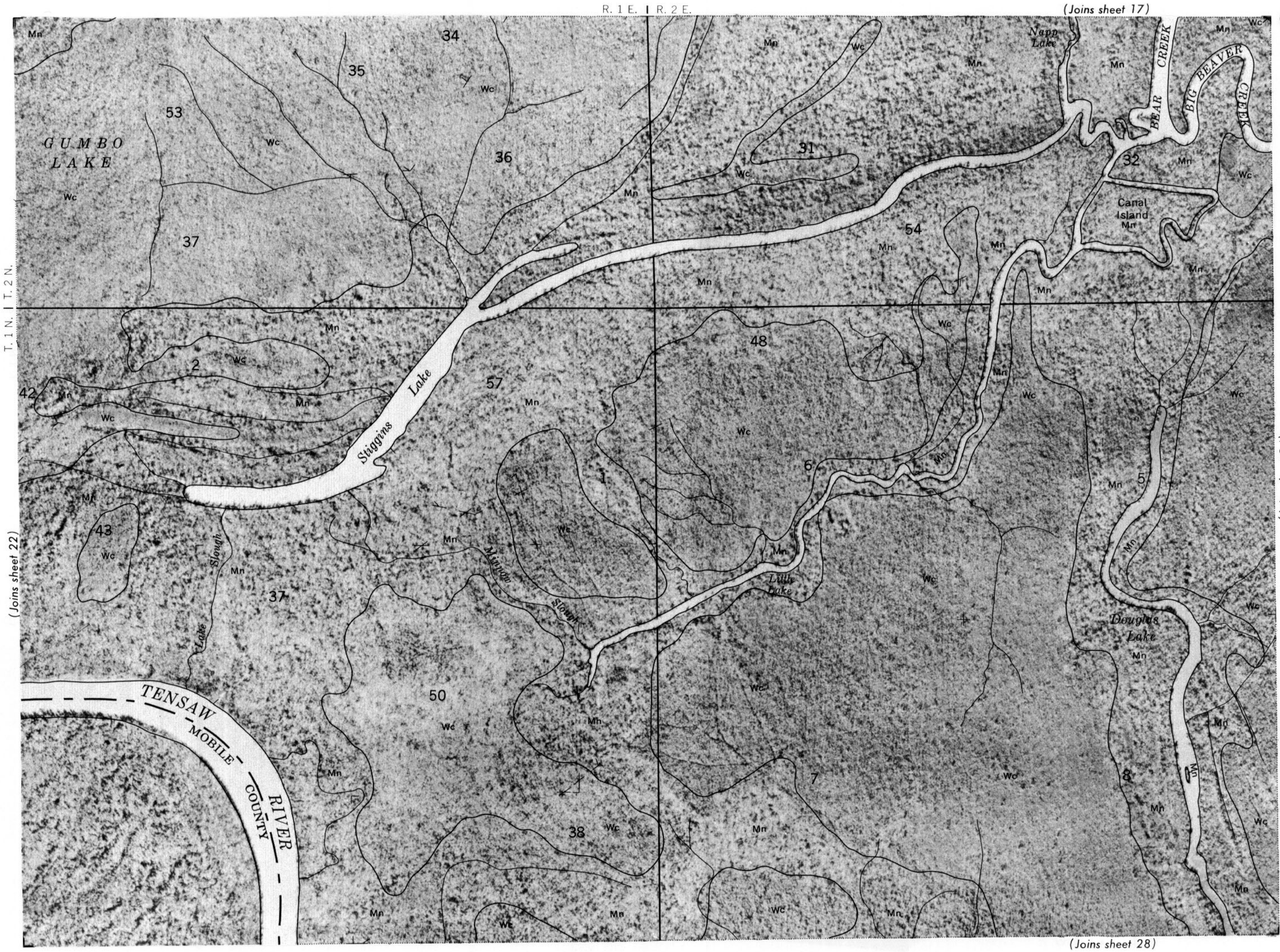


0 ½ 1 Mile

Scale 1:20000

0 5000 Feet

23

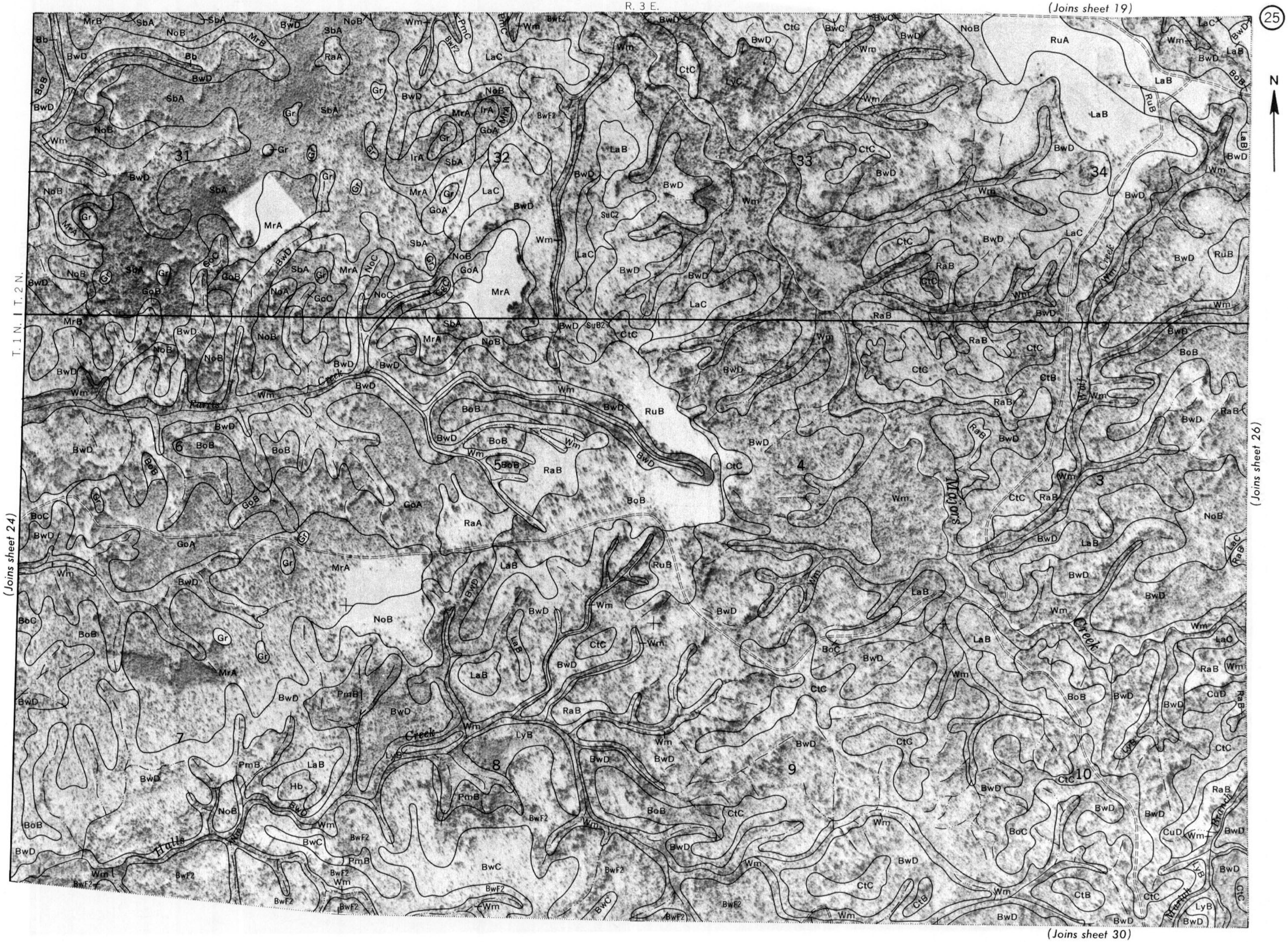


0 ½ 1 Mile Scale 1:20000 0 5000 Feet

This map is one of a set compiled in 1962, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.

0 ½ 1 Mile Scale 1:20000 0 5000 Feet

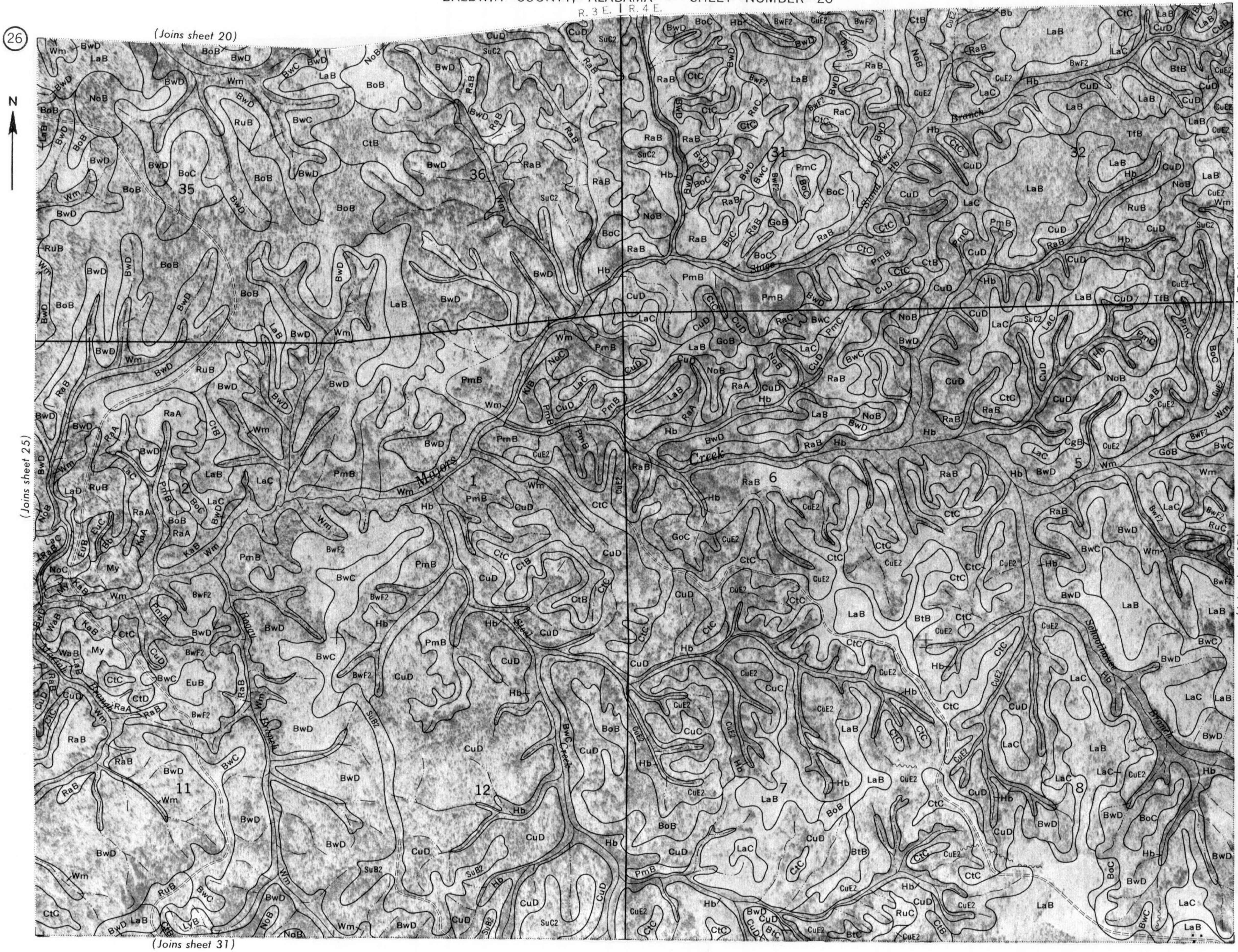


This map is one of a set compiled in 1962, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.

0 ½ 1 Mile Scale 1:20000 0 5000 Feet

BALDWIN COUNTY, ALABAMA — SHEET NUMBER 26



Scale 1:20000

0 ½ 1 Mile

0 5000 Feet

This map is one of a set compiled in 1962, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite

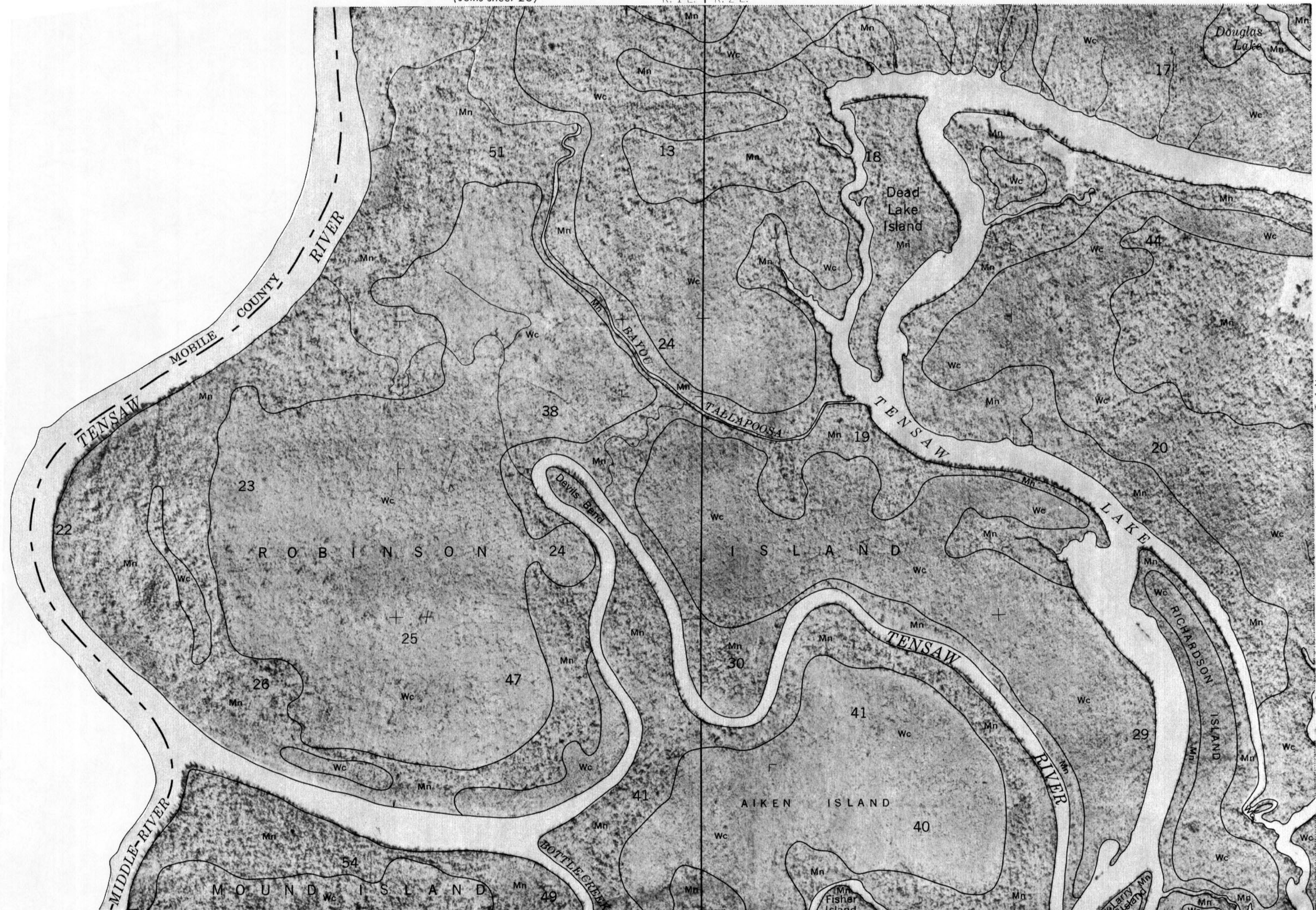
Scale 1:20000

0 ½ 1 Mile

0 5000 Feet

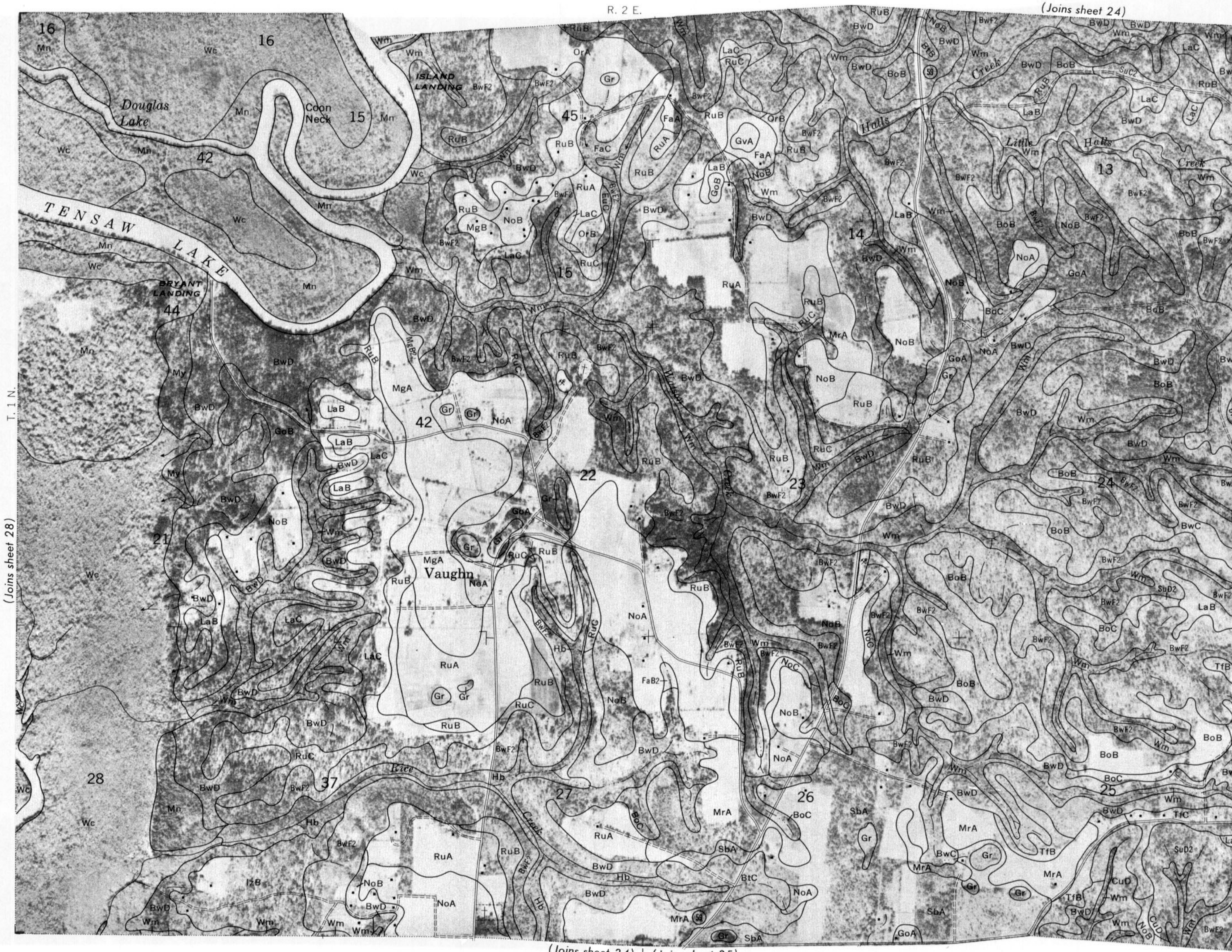
(28)

(Joins sheet 23)



(Joins sheet 33) | (Joins sheet 34)

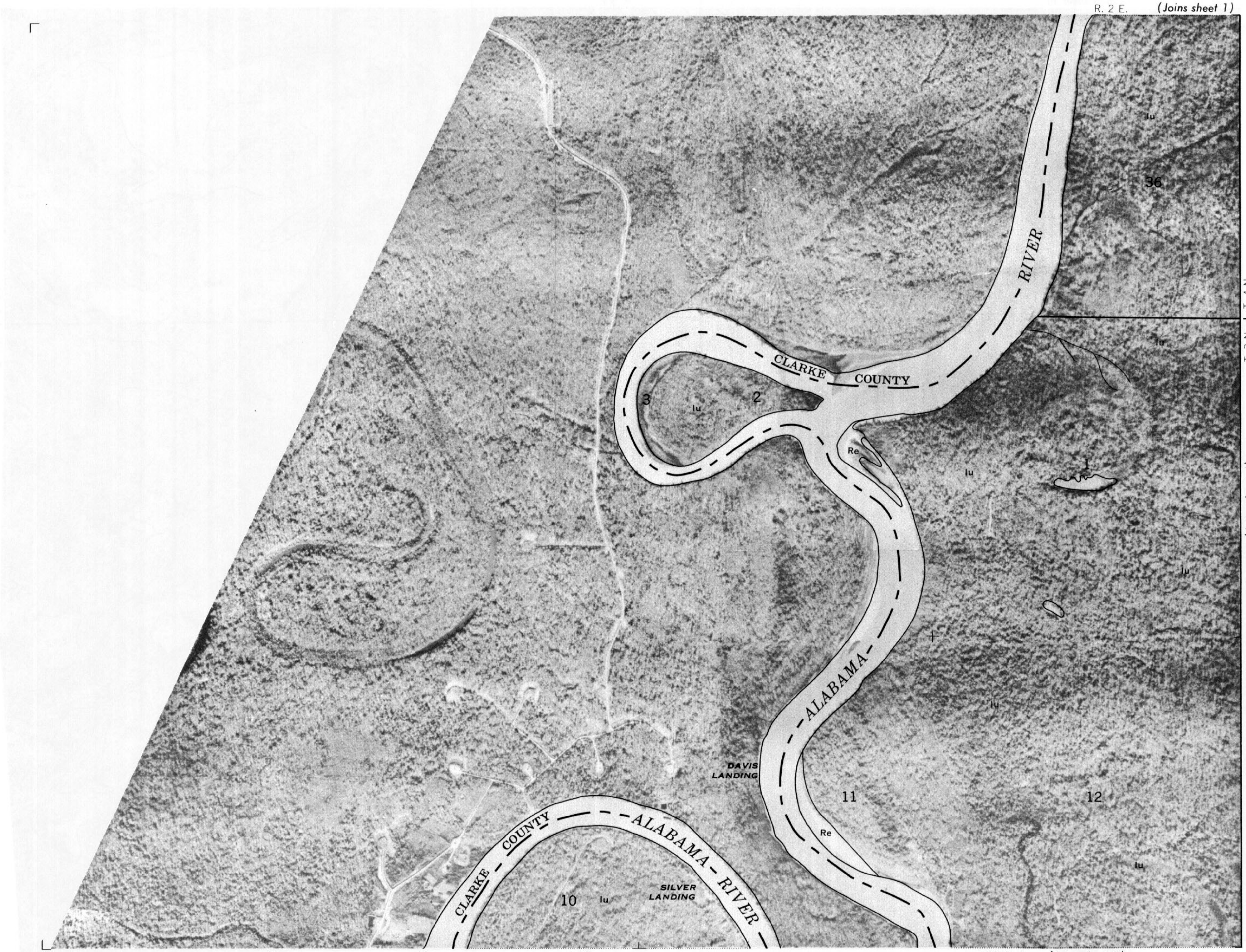
0 ½ 1 Mile
Scale 1:20000
0 5000 Feet



This map is one of a set compiled in 1962, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.

0 ½ 1 Mile Scale 1:20000 0 5000 Feet

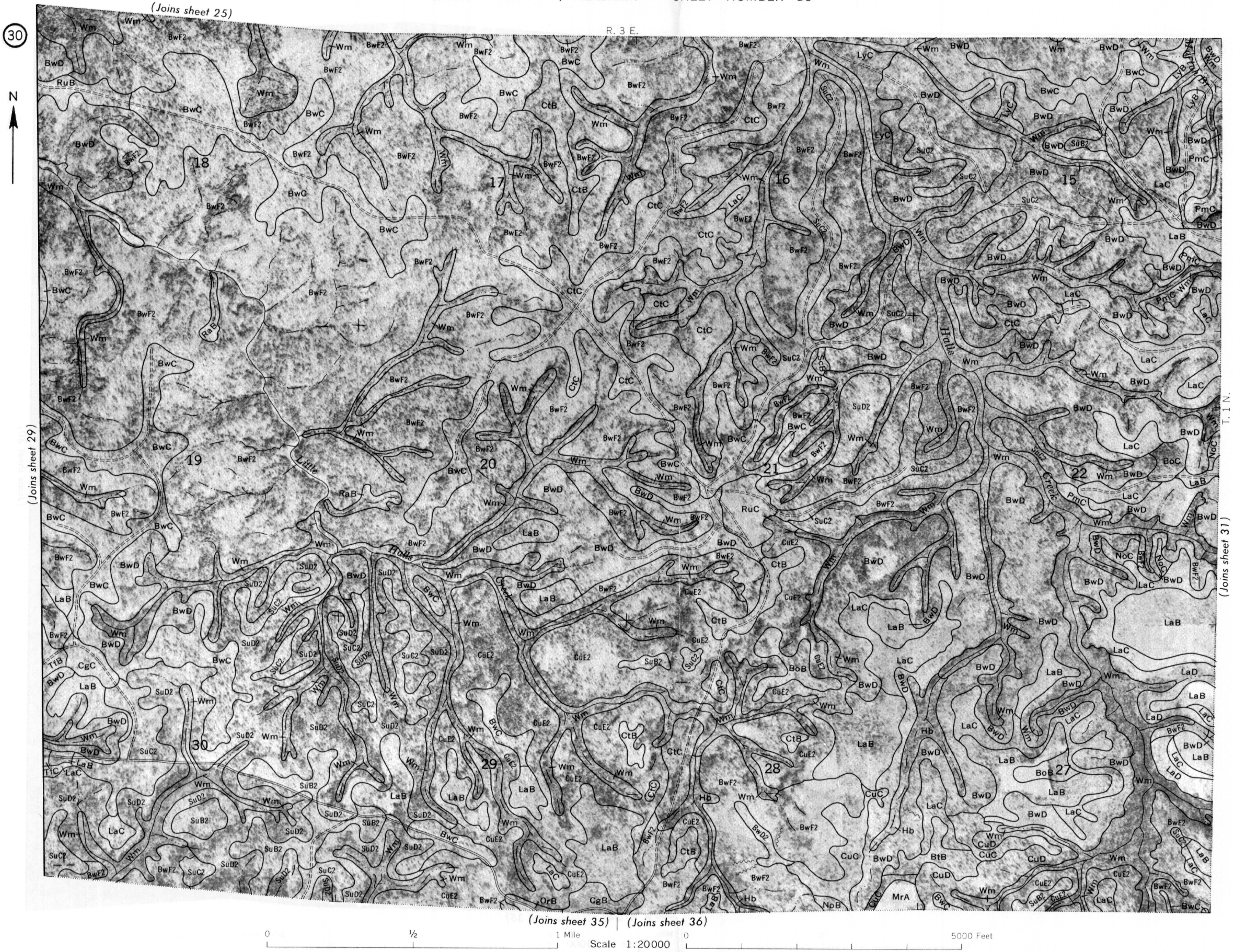


0 ½ 1 Mile Scale 1:20000 0 5000 Feet

(Joins sheet 8)

This map is one of a set compiled in 1962, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.



30
(Joins sheet 25)
R. 3 E.
N
T. 1 N.
(Joins sheet 29)
(Joins sheet 31)
(Joins sheet 35)
(Joins sheet 36)
18
17
16
15
19
20
21
22
30
29
28
27
Little Halls Creek
Halls Creek
0 ½ 1 Mile
Scale 1:20000
0 5000 Feet

R. 3 E. | R. 4 E.

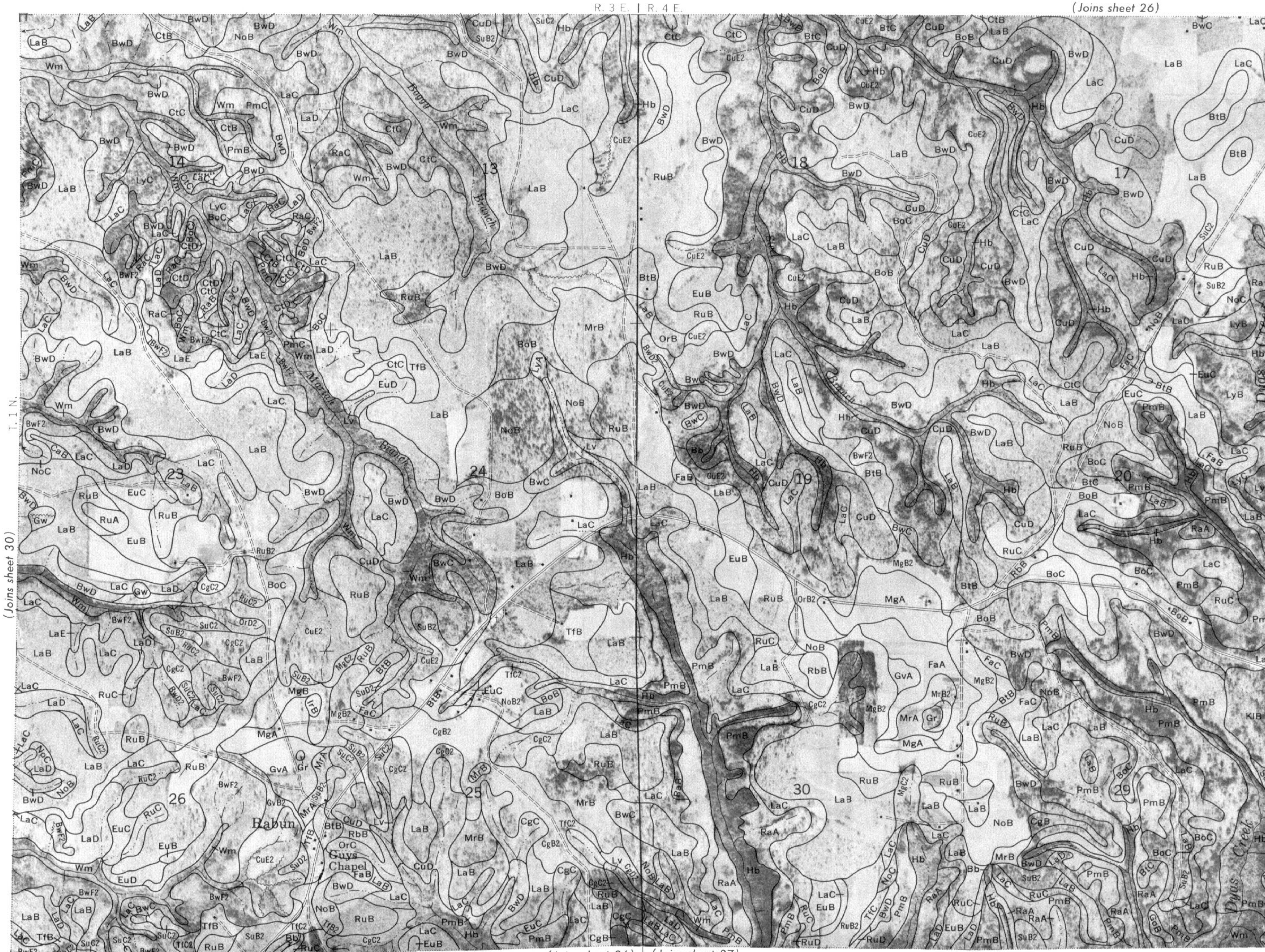
(Joins sheet 26)

31

N

T. 1 N.

(Joins sheet 30)



(Joins sheet 32)

(Joins sheet 36) | (Joins sheet 37)

0 ½ 1 Mile

Scale 1:20000

0 5000 Feet

This map is one of a set compiled in 1962, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.

32

(Joins sheet 27)

(Joins sheet 31)

(Joins sheet 37) | (Joins sheet 38)

0 ½ 1 Mile Scale 1:20000 0 5000 Feet

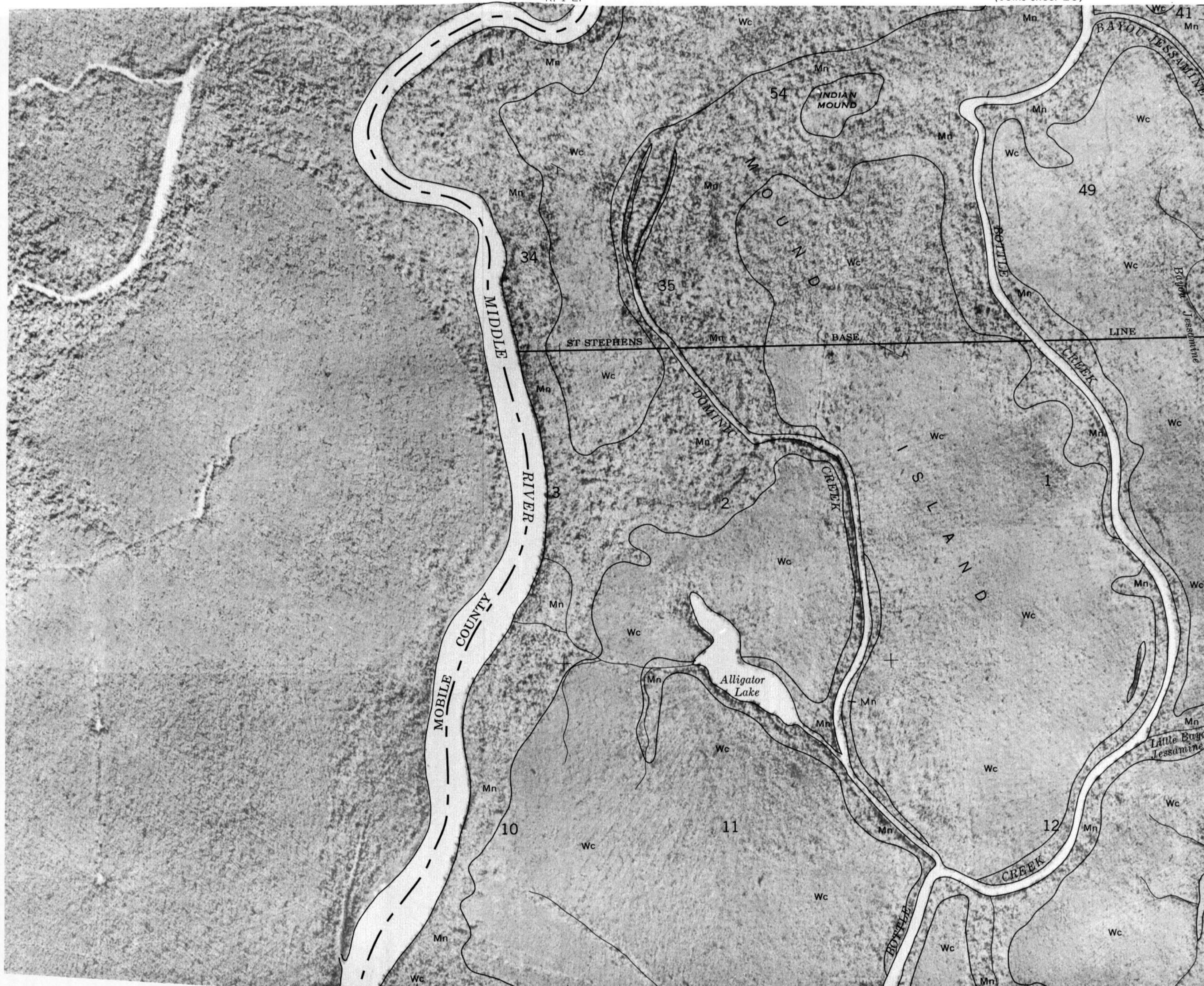
This map is one of a set compiled in 1962, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.

R. 1 E.

(Joins sheet 28)

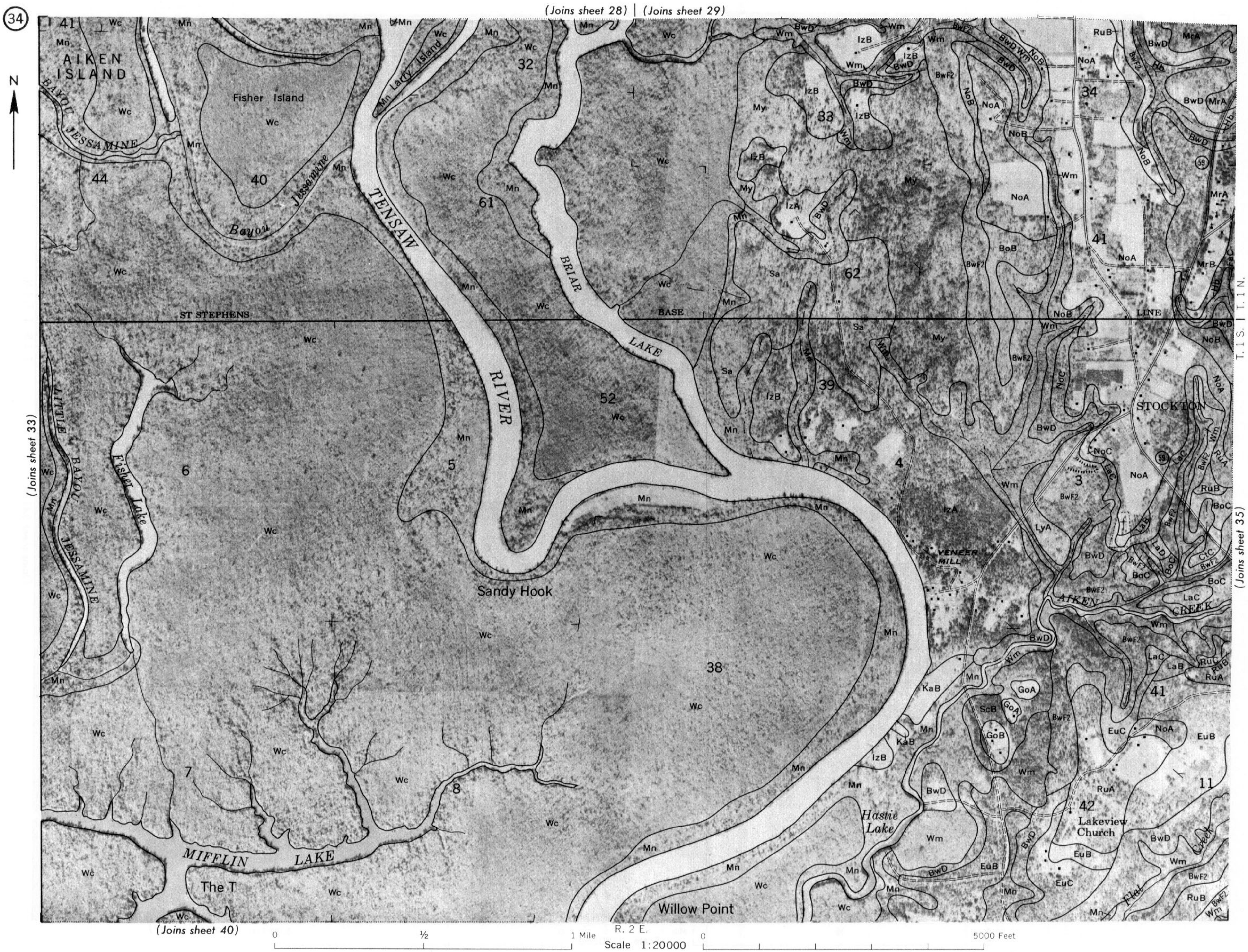
33

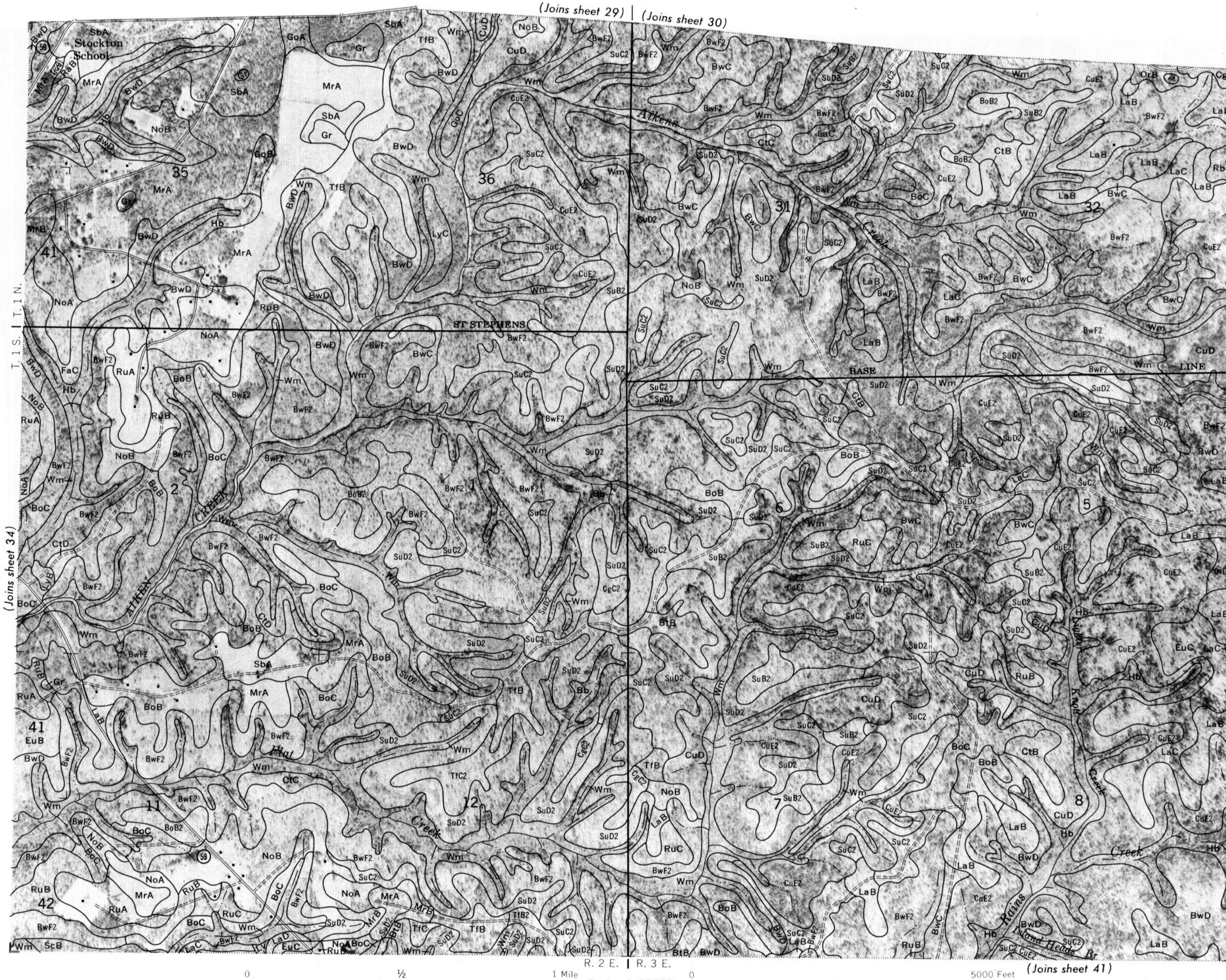


(Joins sheet 34)

(Joins sheet 39)

0 ½ 1 Mile Scale 1:20000 0 5000 Feet


34
(Joins sheet 28) | (Joins sheet 29)
(Joins sheet 33)
(Joins sheet 35)
(Joins sheet 40)
N
AIKEN ISLAND
BAYOU JESSAMINE
Fisher Island
Larry Island
Jessamine Bayou
TENSAW RIVER
BRIAR LAKE
ST STEPHENS
BASE
LINE
LITTLE BAYOU JESSAMINE
Fisher Lake
STOCKTON
VENEER MILL
AIKEN CREEK
Sandy Hook
MIFFLIN LAKE
The T
Willow Point
Hastie Lake
Lakeview Church
Flat Creek
T. 1 N.
T. 1 S.
R. 2 E.
0
½
1 Mile
Scale 1:20000
0
5000 Feet

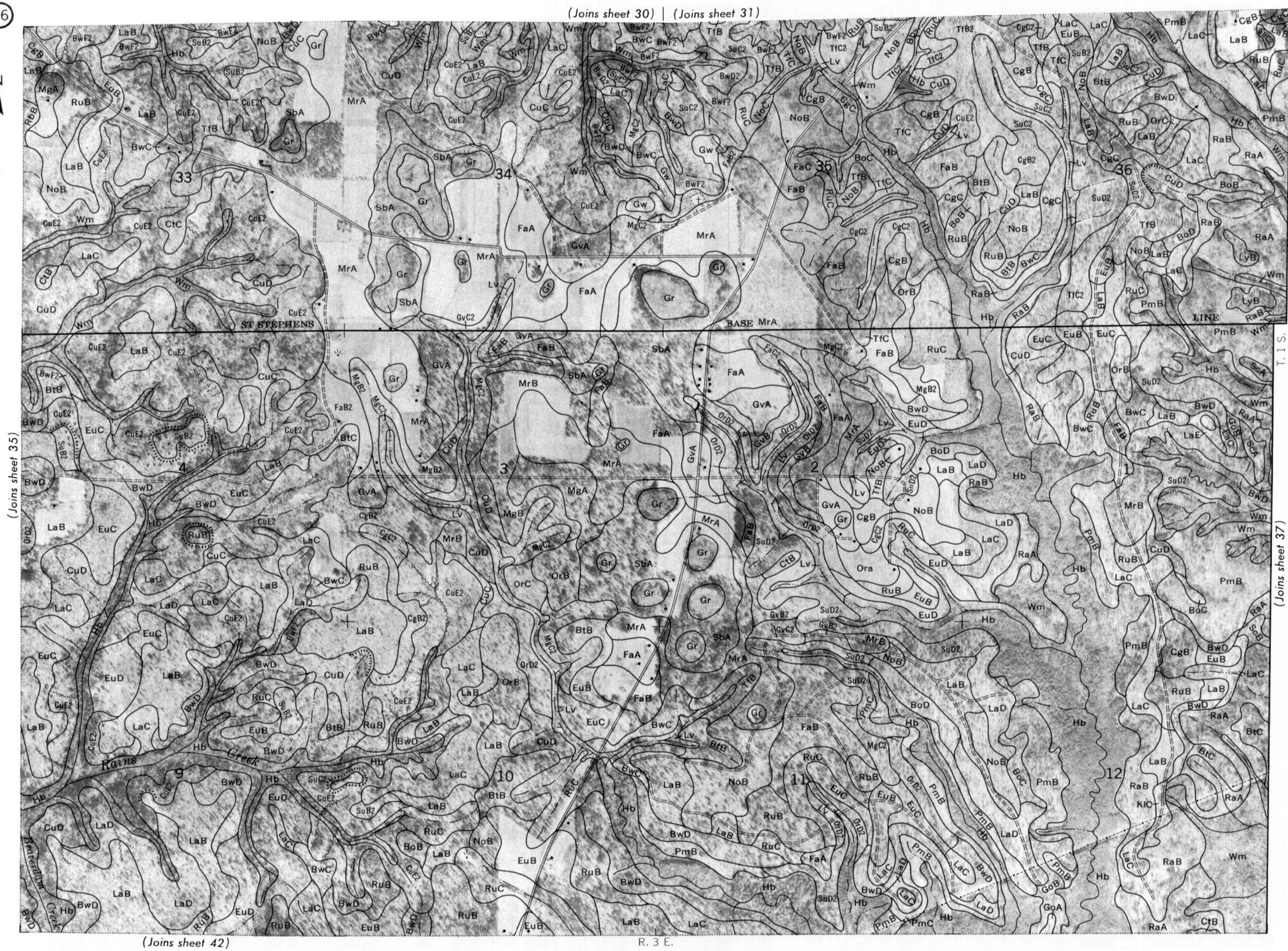


0 ½ 1 Mile Scale 1:20000 0 5000 Feet

This map is one of a set compiled in 1962, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.

36



0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

(Joins sheet 31) | (Joins sheet 32)

37

N

This map is one of a set compiled in 1962, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.

T. 1 N.

T. 1 S.

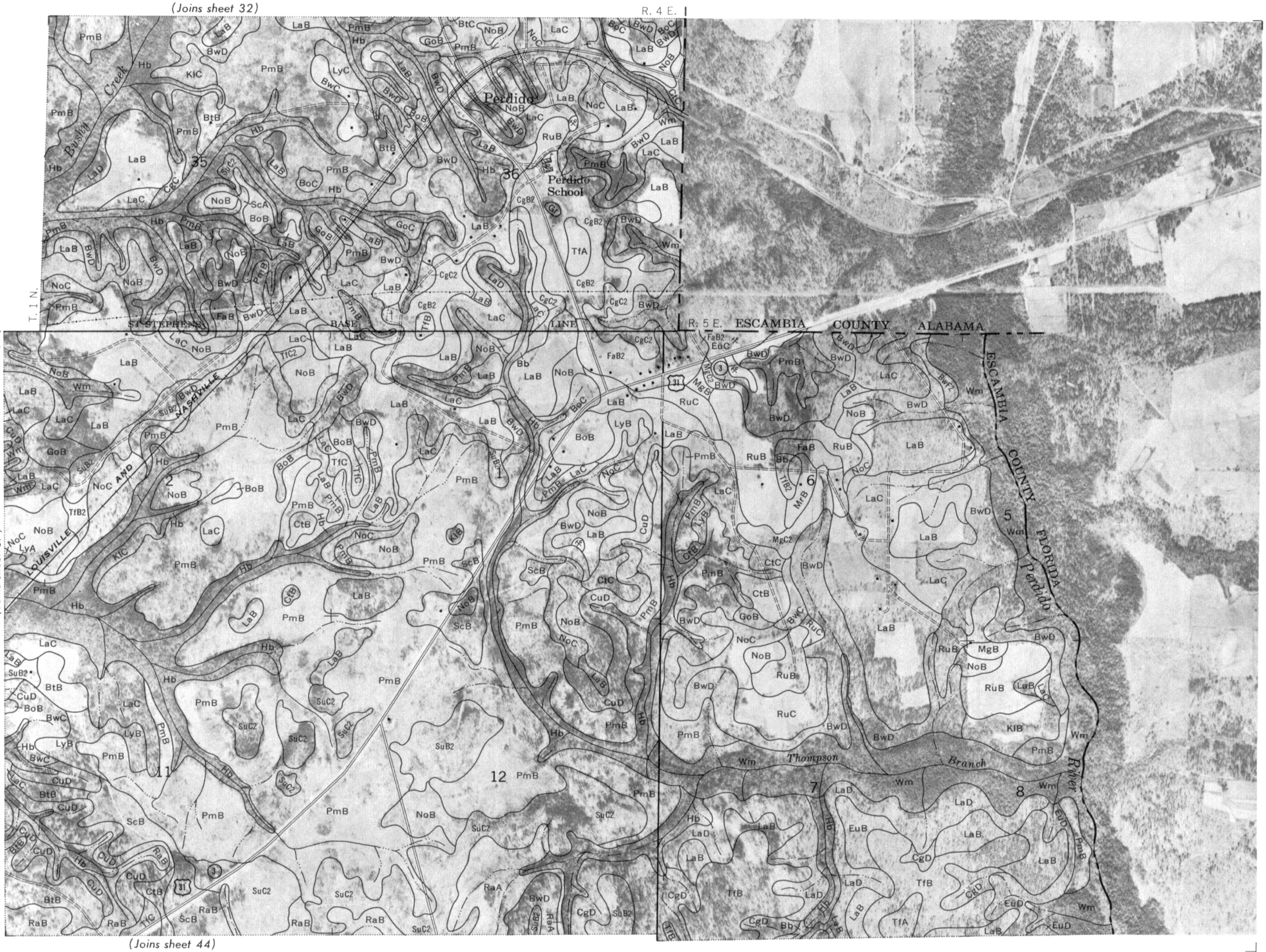
(Joins sheet 36)

(Joins sheet 38)

R. 4 E.

(Joins sheet 43)

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet



0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

R. 1 E.

(Joins sheet 33)

39

N

T. 1 S.

(Joins sheet 40)

(Joins sheet 45)

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

Range, township, and section corners shown on this map are indefinite.

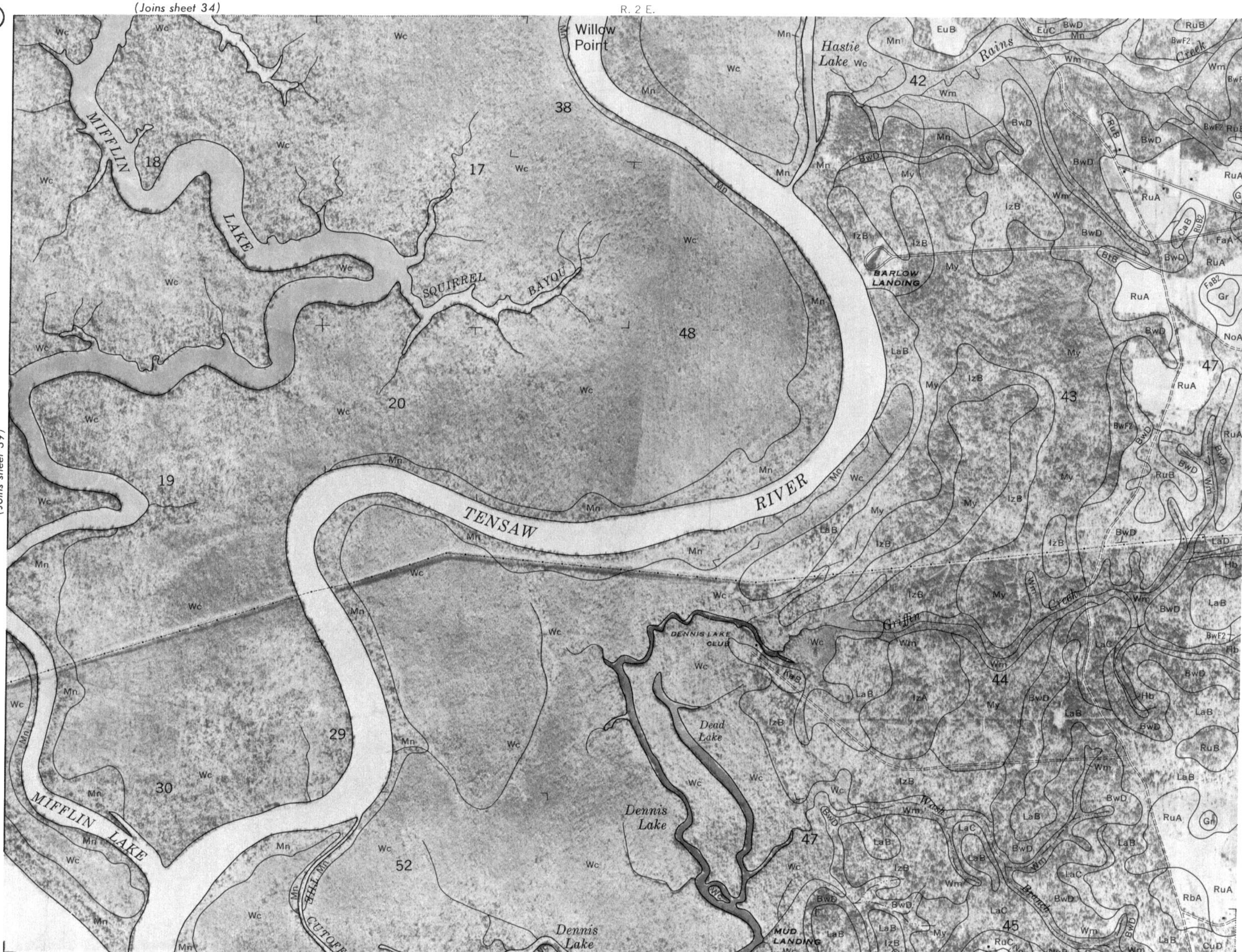
This map is one of a set compiled in 1962, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

BALDWIN COUNTY, ALABAMA — SHEET NUMBER 4

0 ½ 1 Mile Scale 1:20000 0 5000 Feet

40

(Joins sheet 34)



(Joins sheet 39)

(Joins sheet 41)

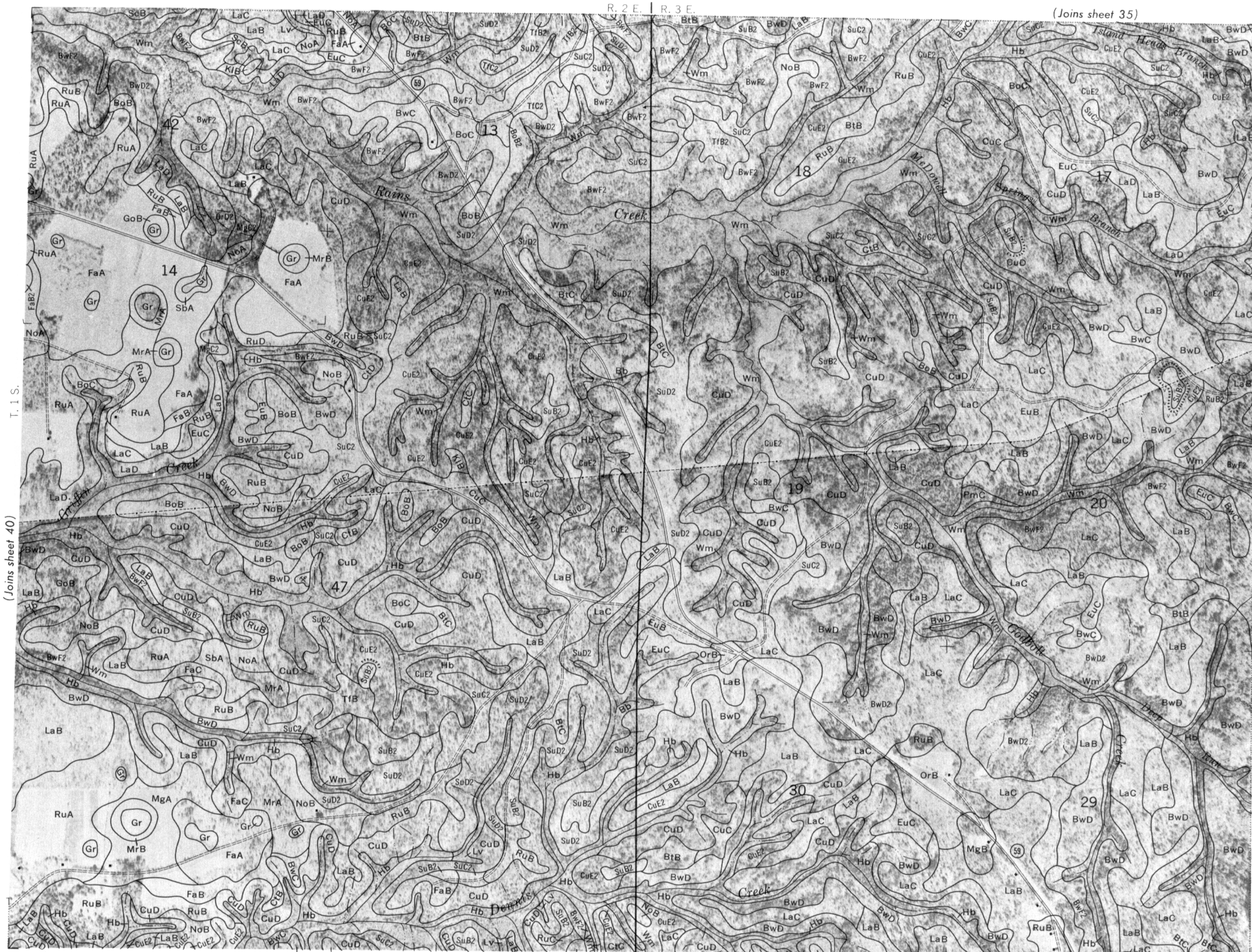
(Joins sheet 46)

0 ½ 1 Mile

Scale 1:20 000

0 5000 Feet

41



0 ½ 1 Mile

Scale 1:20 000

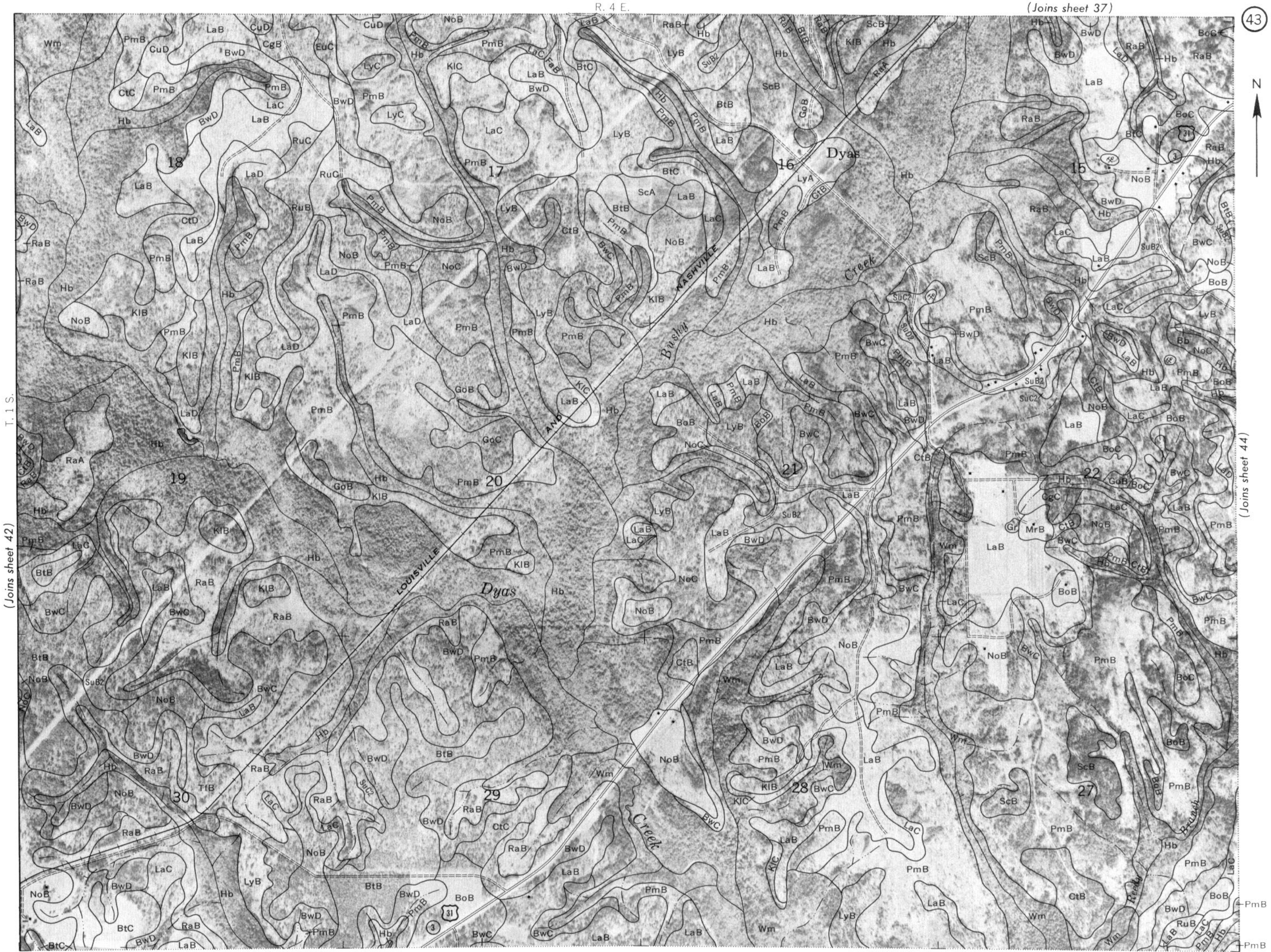
0 5000 Feet

Range, township, and section corners shown on this map are indefinite.

This map is one of a set compiled in 1962, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

42


(Joins sheet 36)
R. 3 E.
N
(Joins sheet 41)
T. 1 S.
(Joins sheet 43)
(Joins sheet 48)
McDowell Springs Branch
Creek
McCurtin Creek
Deep Run
Carney
L AND N
0
½
1 Mile
Scale 1:20 000
0
5000 Feet



0 ½ 1 Mile
Scale 1:20 000
0 5000 Feet

This map is one of a set compiled in 1962, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

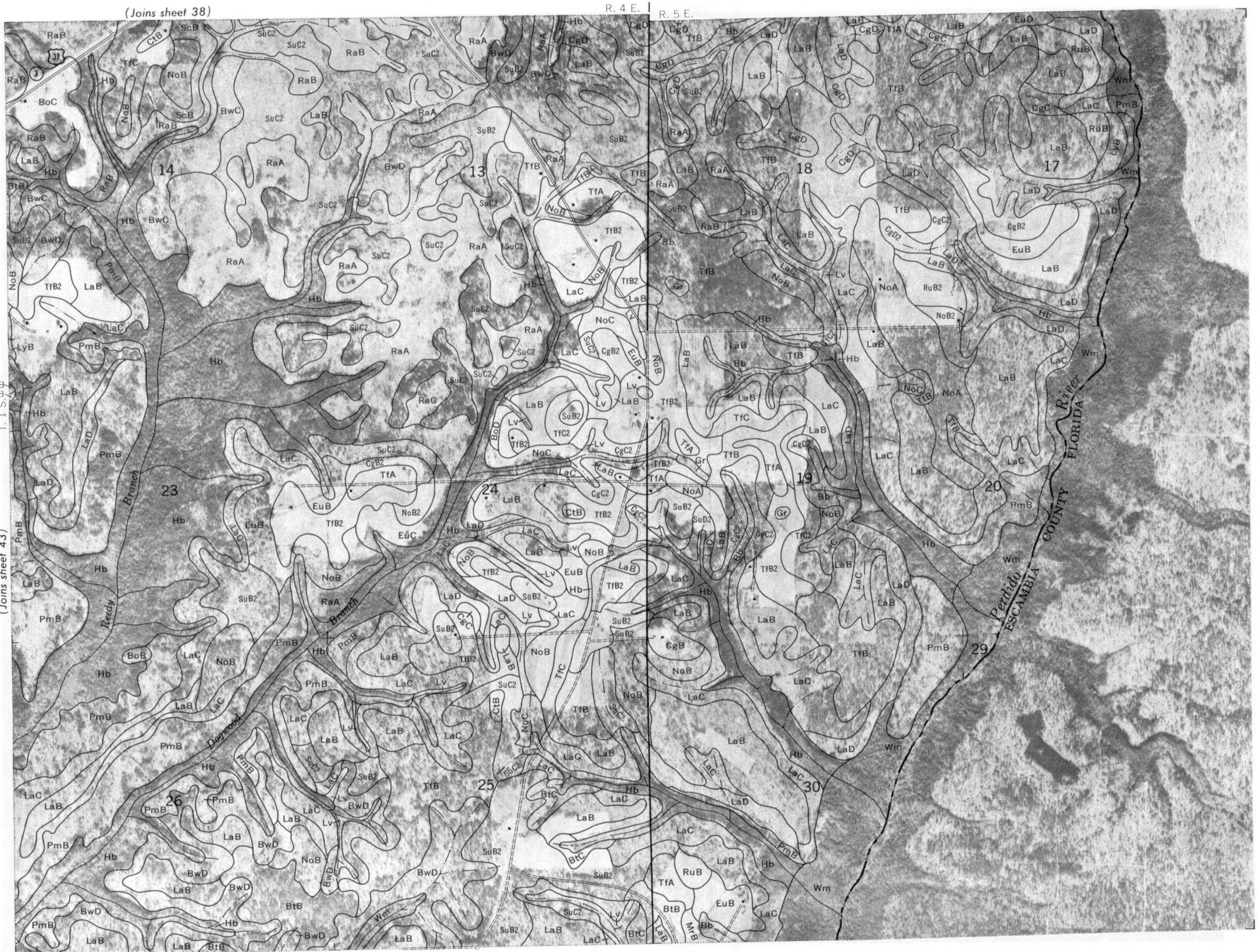
Range, township, and section corners shown on this map are indefinite.

BALDWIN COUNTY, ALABAMA — SHEET NUMBER 44

44

(Joins sheet 38)

(Joins sheet 43)



(Joins sheet 50)

0 ½ 1 Mile

Scale 1:20 000

0 5000 Feet

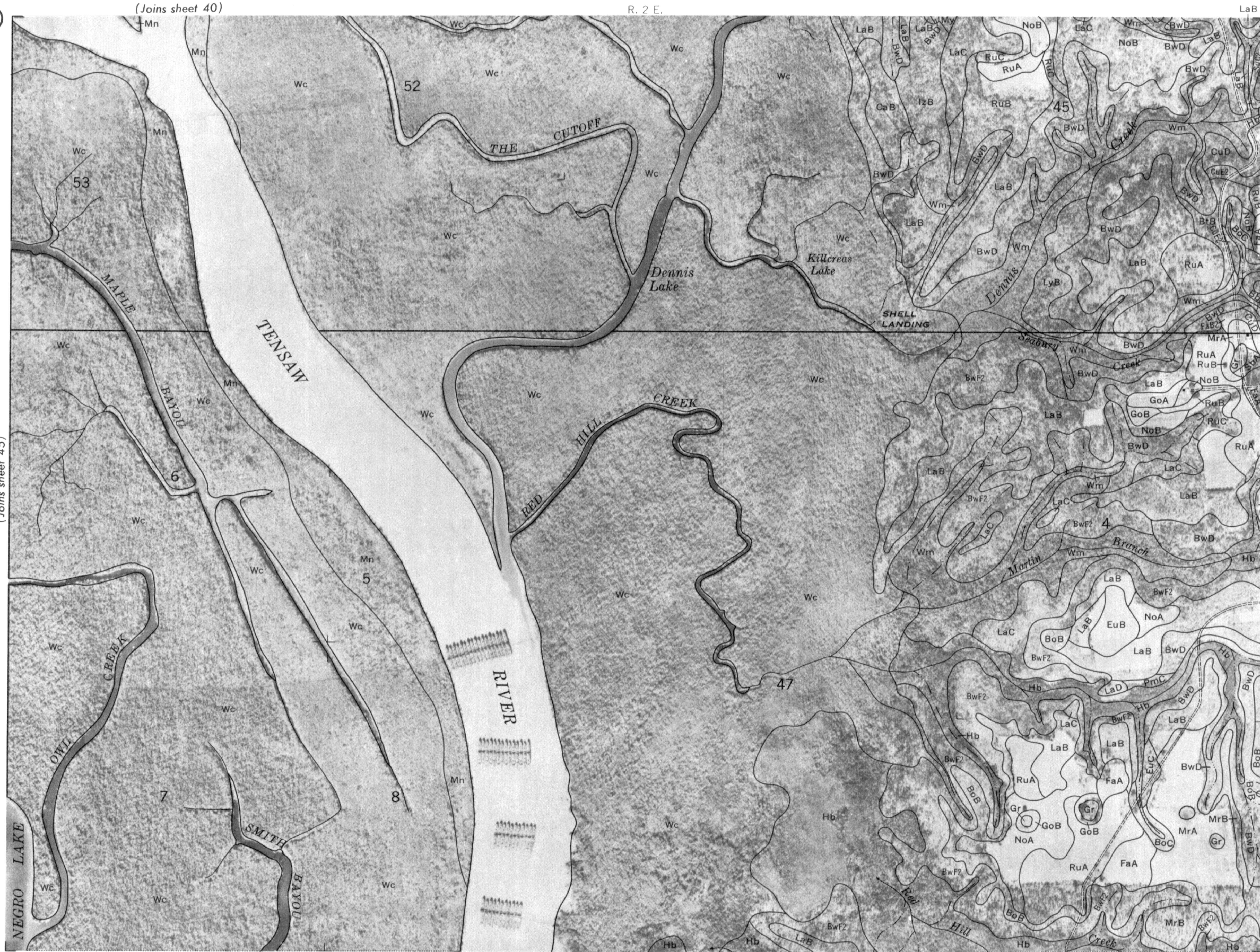
This map is one of a set compiled in 1962, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

46

(Joins sheet 40)



0 ½ 1 Mile

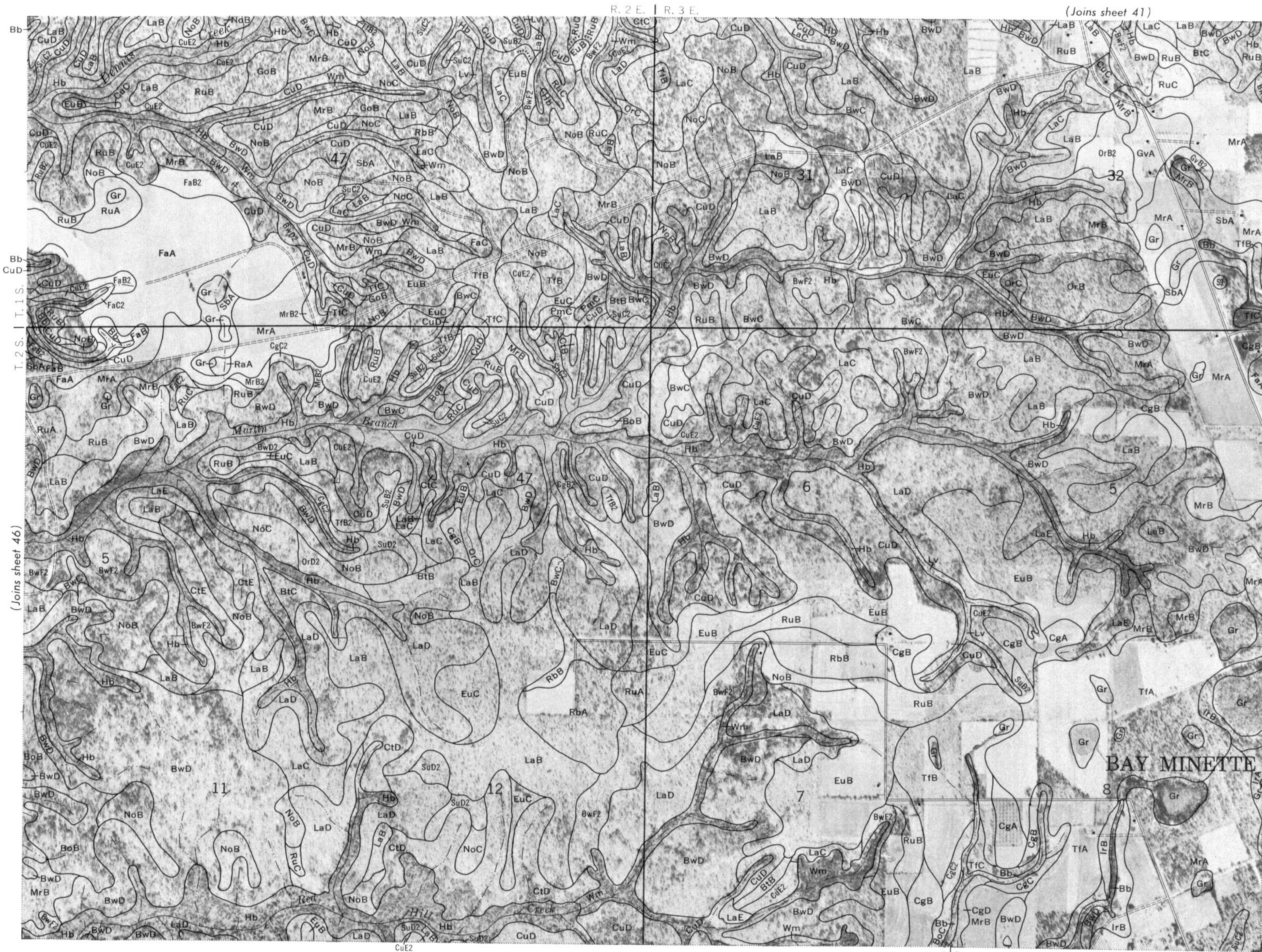
Scale 1:20 000

0 5000 Feet

47

This map is one of a set compiled in 1962, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.



Scale 1:20 000
0 ½ 1 Mile
0 5000 Feet

BALDWIN COUNTY, ALABAMA — SHEET NUMBER 48

48

(Joins sheet 42)

R. 3 E.

(Joins sheet 47)

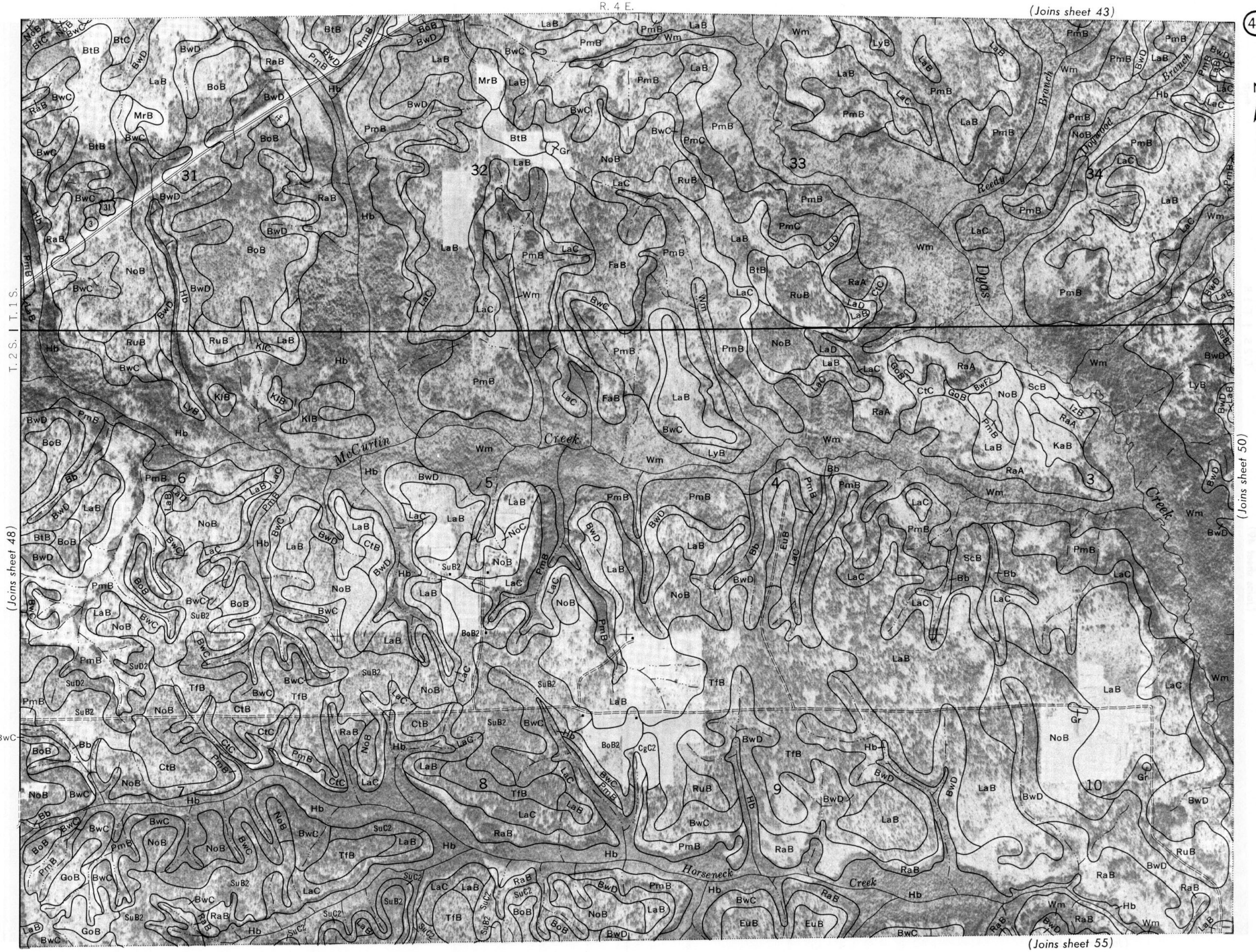
(Joins sheet 49)

(Joins sheet 54)

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

This map is one of a set compiled in 1962, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.



Scale 1:20 000

0 ½ 1 Mile

0 5000 Feet

BALDWIN COUNTY, ALABAMA — SHEET NUMBER 5

5

0 ½ 1 Mile Scale 1:20000 0 5000 Feet

This map is one of a set compiled in 1962, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

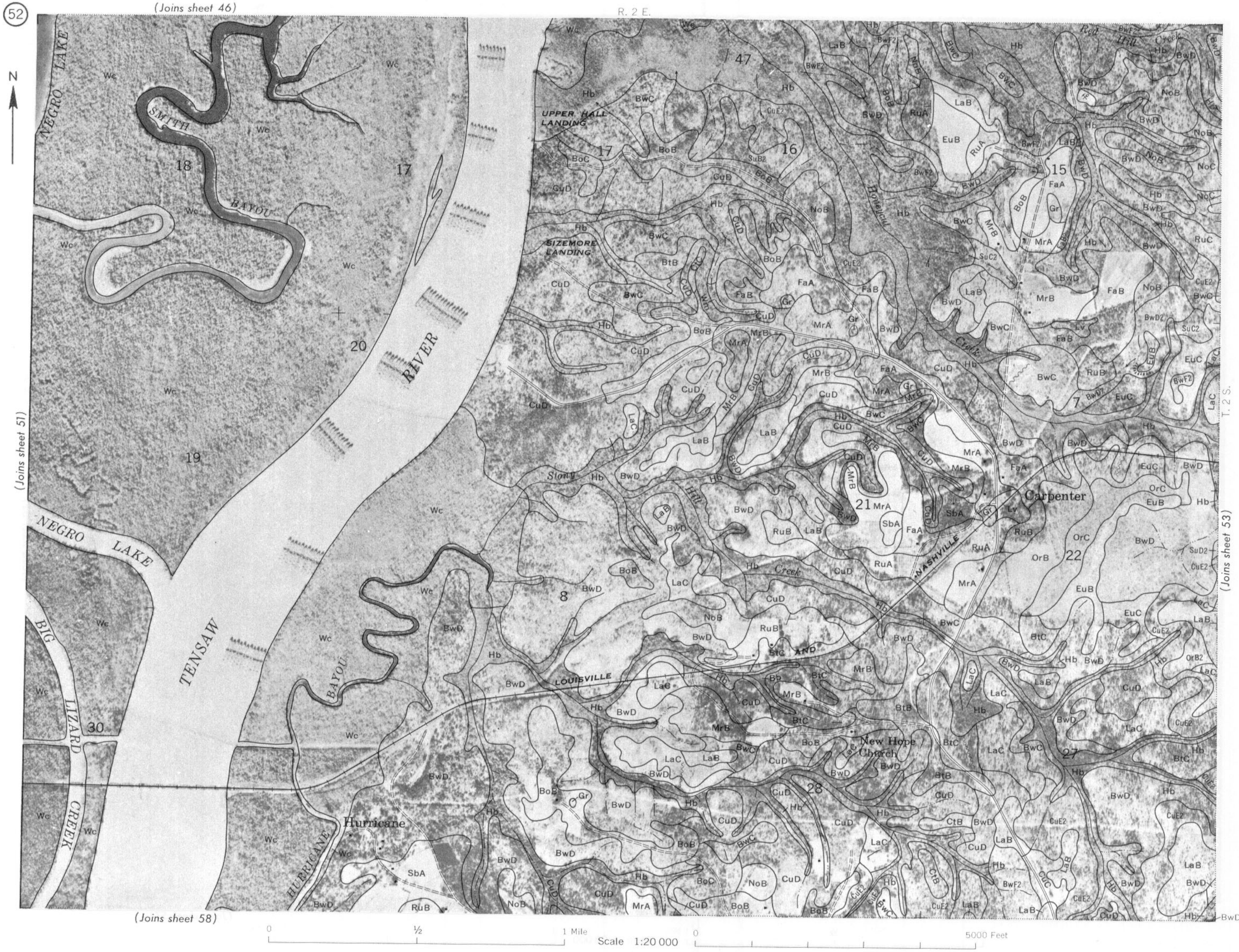
Range, township, and section corners shown on this map are indefinite.

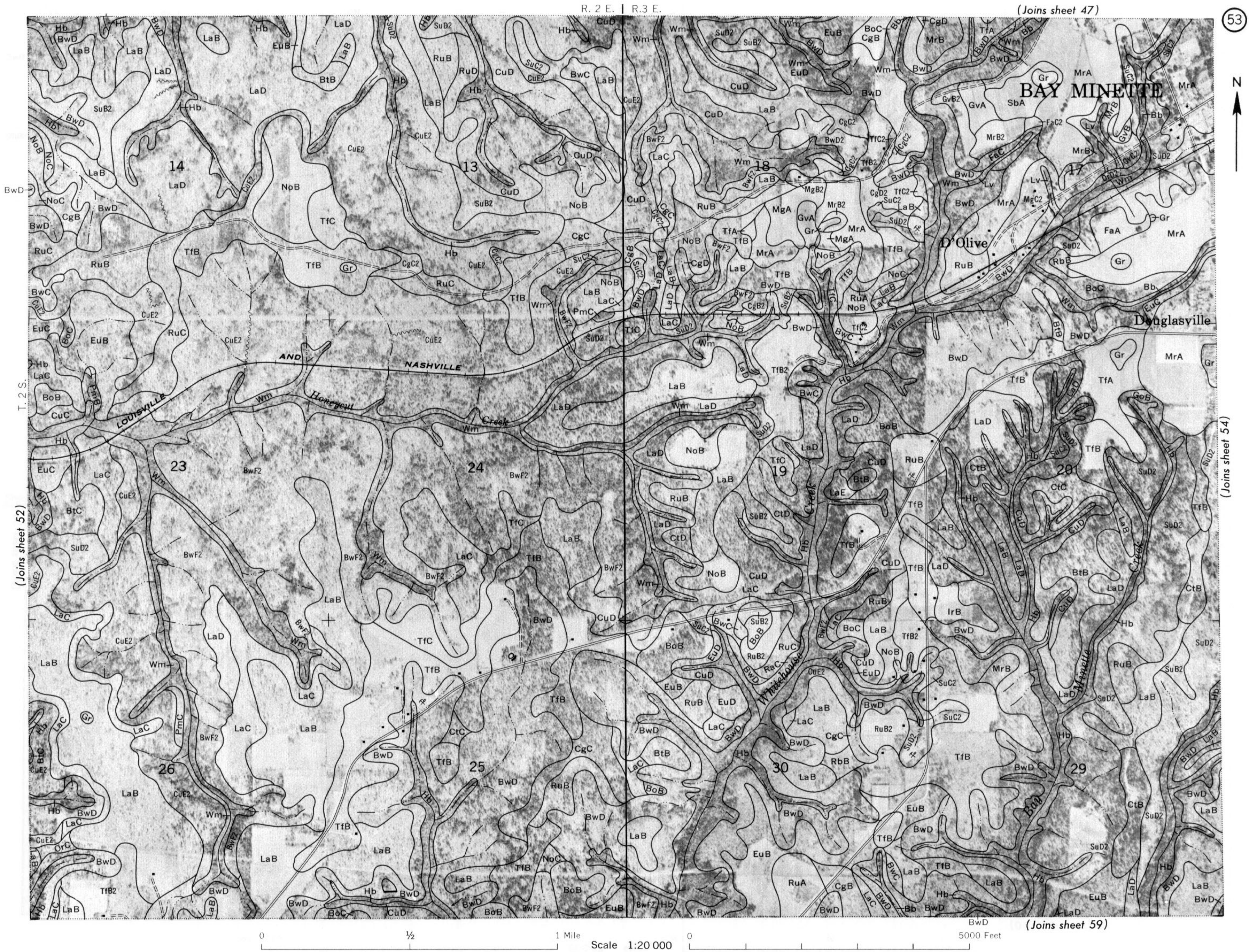

50
(Joins sheet 44)
(Joins sheet 49)
(Joins sheet 56)
N
R. 4 E. | R. 5 E.
T. 1 S. | T. 2 S.
Phillipsville
Perdido
River
Dyas
Creek
ESCAMBIA COUNTY
FLORIDA
35
36
31
2
1
6
11
12
0 ½ 1 Mile
Scale 1:20 000
0 5000 Feet

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

This map is one of a set compiled in 1962, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.


52
(Joins sheet 46)
R. 2 E.
N
(Joins sheet 51)
(Joins sheet 53)
(Joins sheet 58)
T. 2 S.
NEGRO LAKE
SMITH BAYOU
TENSAW RIVER
BIG LIZARD CREEK
HURRICANE BAYOU
UPPER HALL LANDING
SIZEMORE LANDING
Stony Hill Creek
Honeycutt Creek
Red Hill Creek
LOUISVILLE AND NASHVILLE
Carpenter
New Hope Church
Hurricane
47
17
16
15
18
20
19
8
21
7
22
30
28
27
0 ½ 1 Mile
Scale 1:20 000
0 5000 Feet

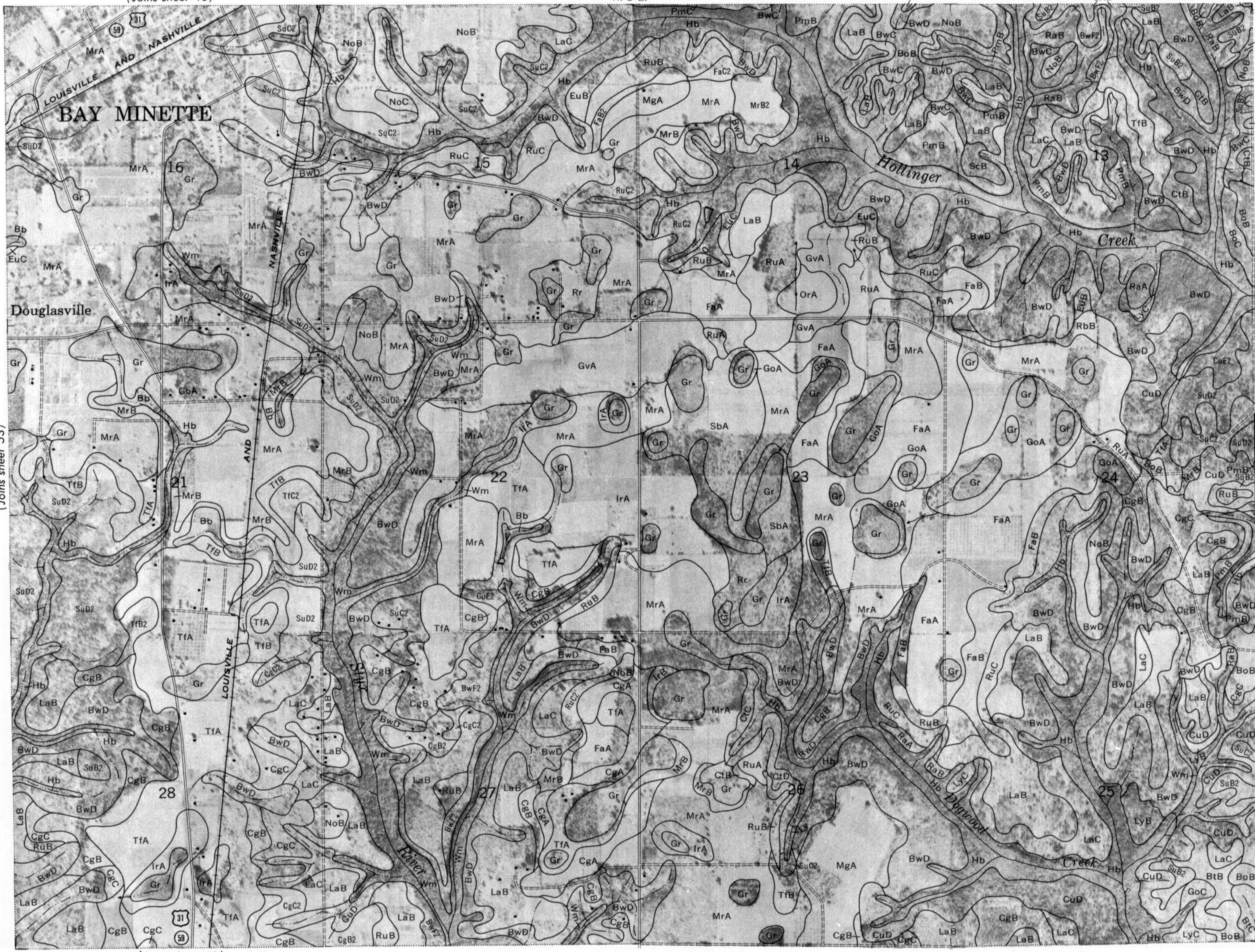


This map is one of a set compiled in 1962, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.

54

(Joins sheet 48)



(Joins sheet 53)

(Joins sheet 55)

(Joins sheet 60)

0 ½ 1 Mile

Scale 1:20 000

0 5000 Feet

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

This map is one of a set compiled in 1962, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.


56
(Joins sheet 50)
(Joins sheet 55)
(Joins sheet 62)
N
Horseneck Creek
Dyas Creek
Perdido River
Indian Creek
Dodds Branch
ESCAMBIA COUNTY FLORIDA
T. 2 S.
R. 4 E. | R. 5 E.
13
14
23
24
25
26
30
Scale 1:20 000
0
½
1 Mile
0
5000 Feet

R. 1 E. (Joins sheet 51) 57

(Joins sheet 58)

(Joins sheet 63) | (Joins sheet 64)

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

This map is one of a set compiled in 1962, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.

58

(Joins sheet 52)

R. 2 E.

(Joins sheet 57)

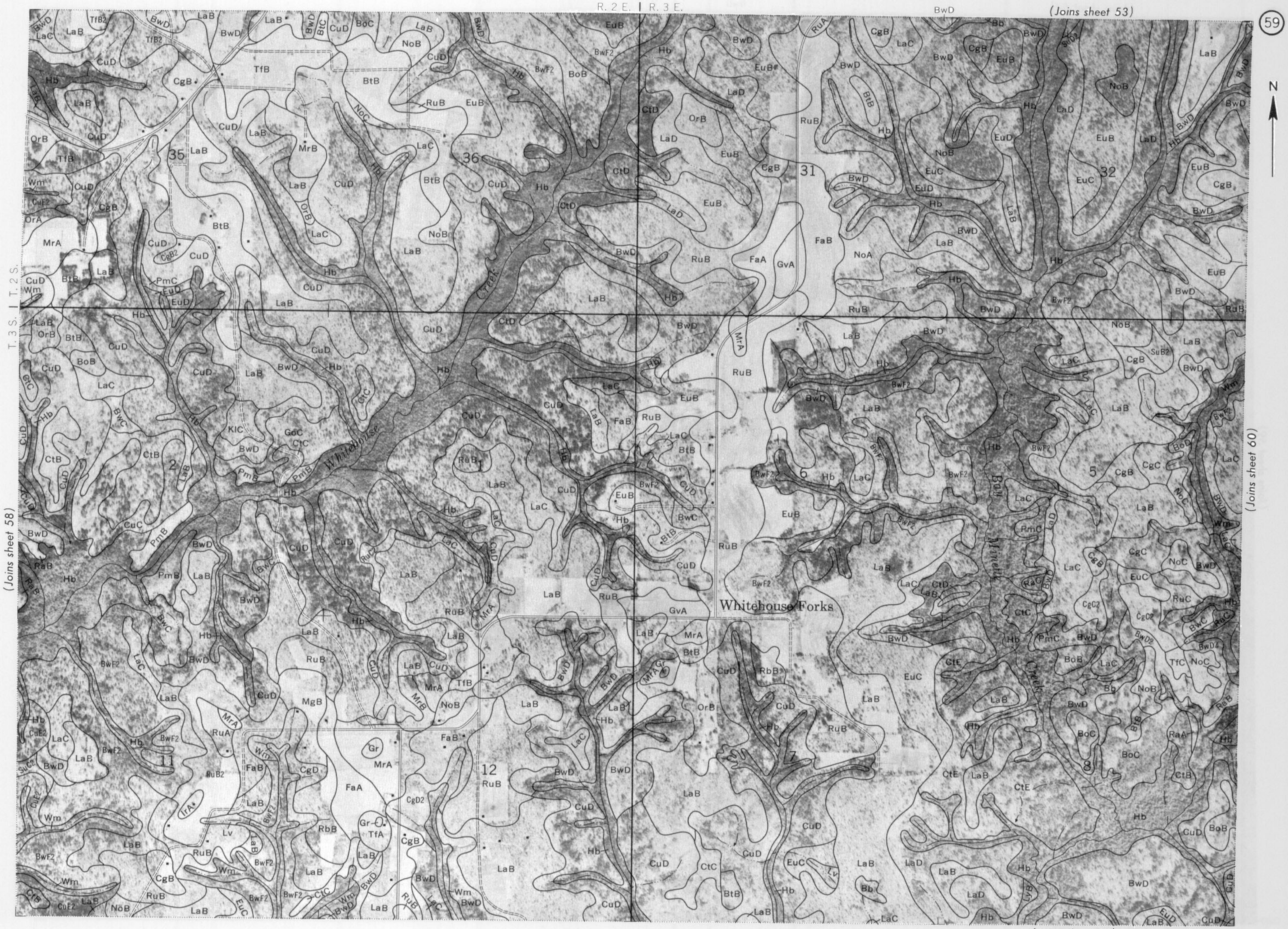
(Joins sheet 59)

(Joins sheet 65)

0 ½ 1 Mile

Scale 1:20 000

0 5000 Feet

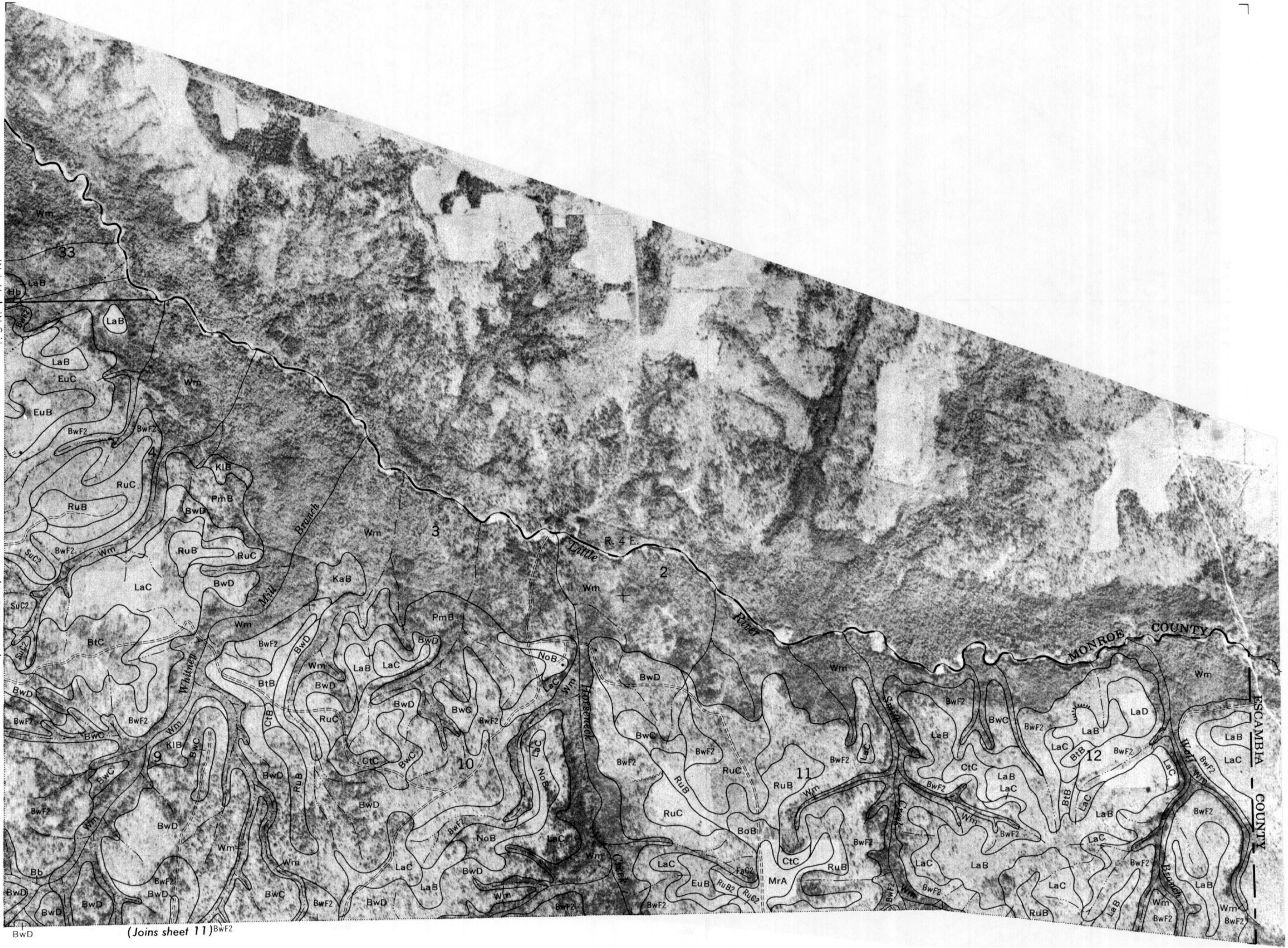


This map is one of a set compiled in 1962, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

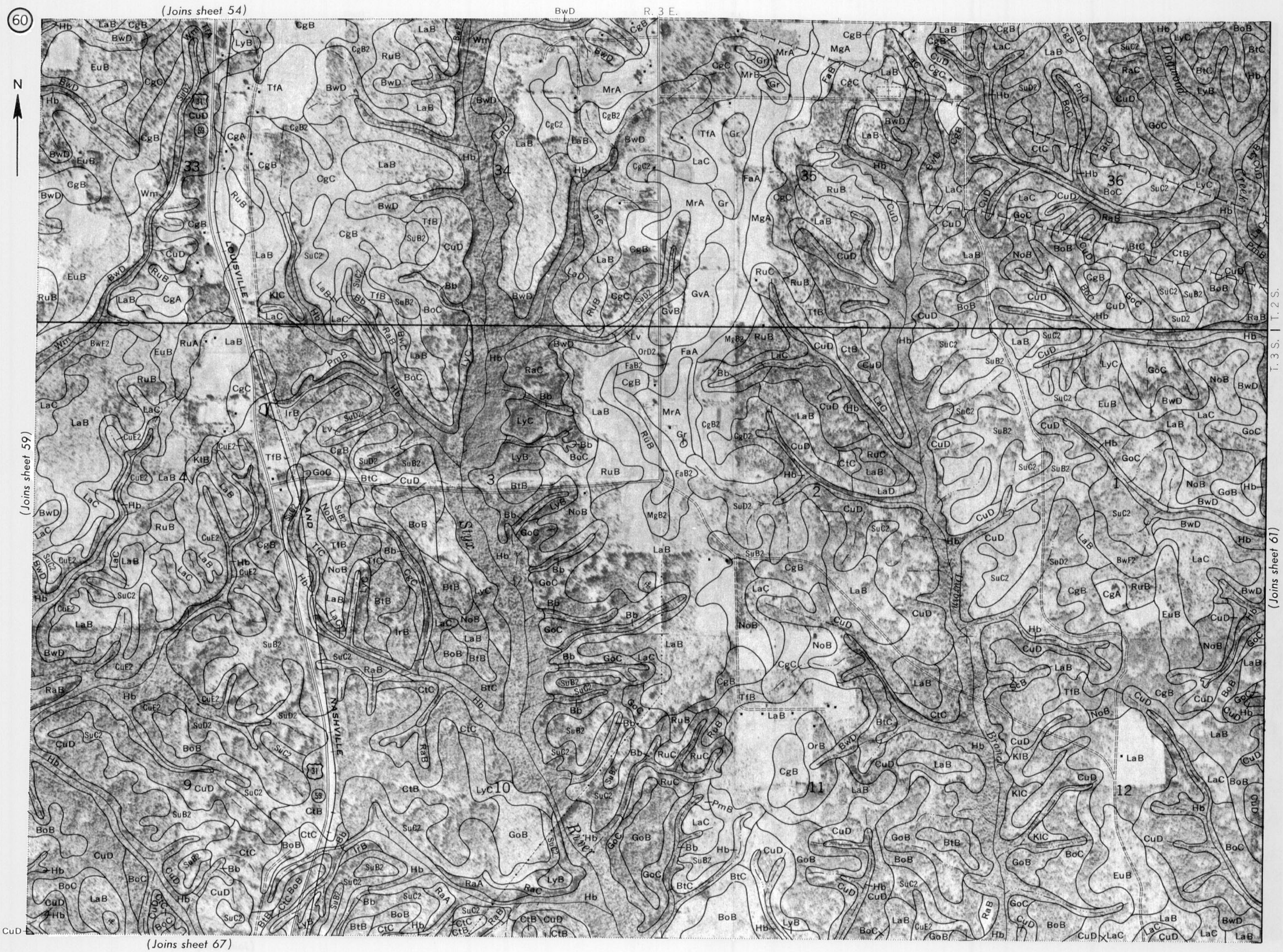
Range, township, and section corners shown on this map are indefinite.

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

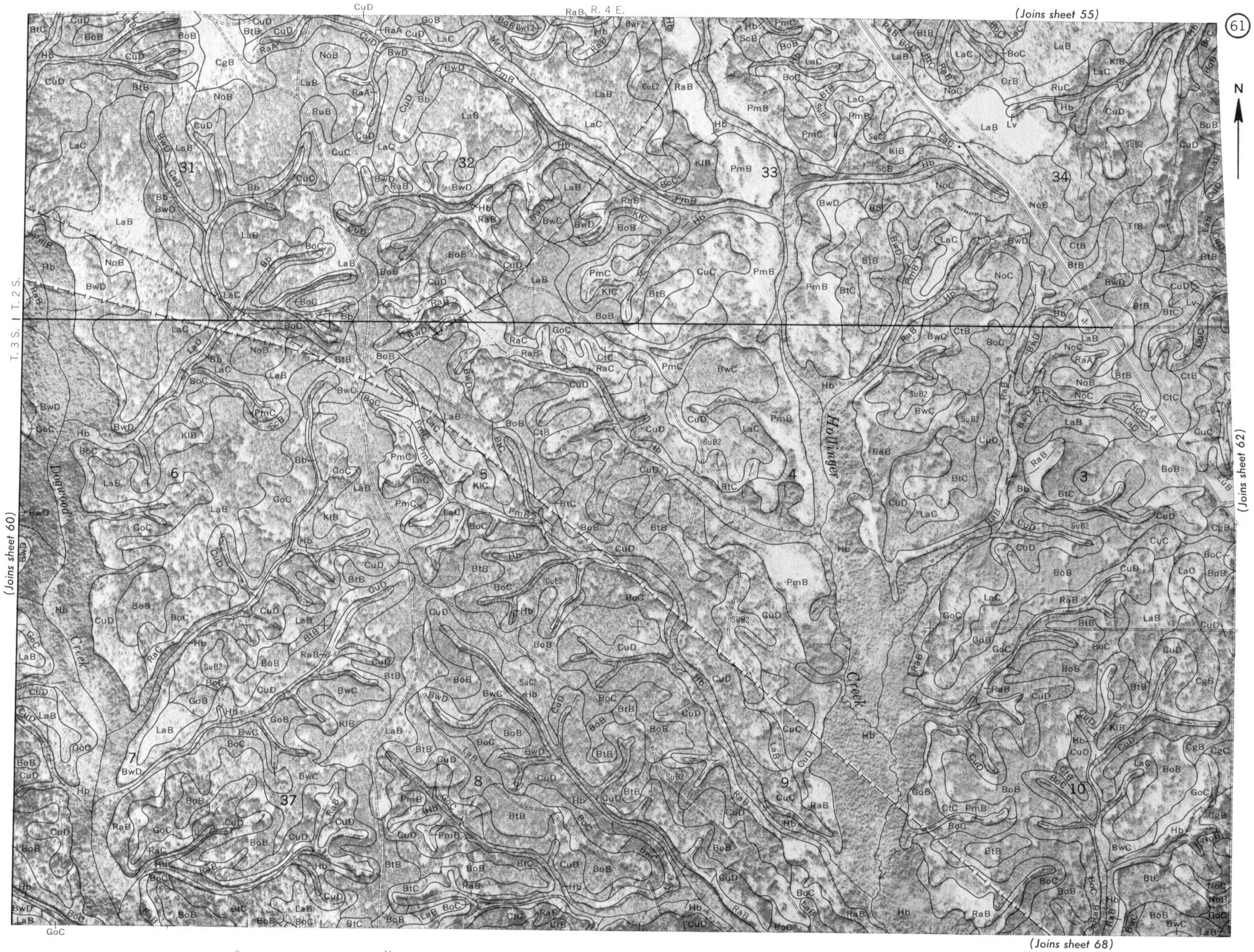
6



0 ½ 1 Mile
Scale 1:20000
0 5000 Feet



0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

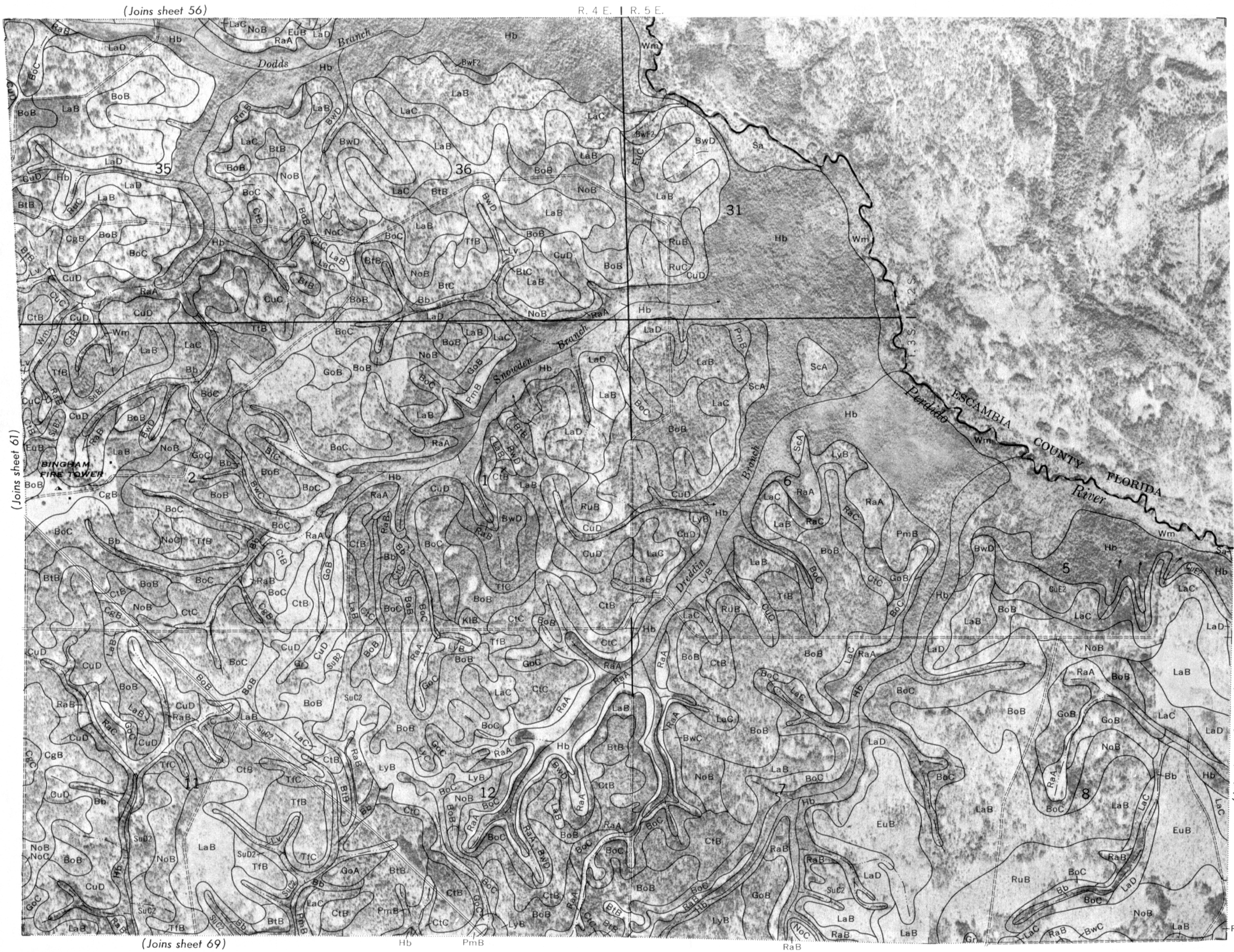


This map is one of a set compiled in 1962, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

62



Scale 1:20 000

0 ½ 1 Mile

0 5000 Feet

0 ½ 1 Mile Scale 1:20000 0 5000 Feet

R. 1 W. | R. 1 E.

This map is one of a set compiled in 1962, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

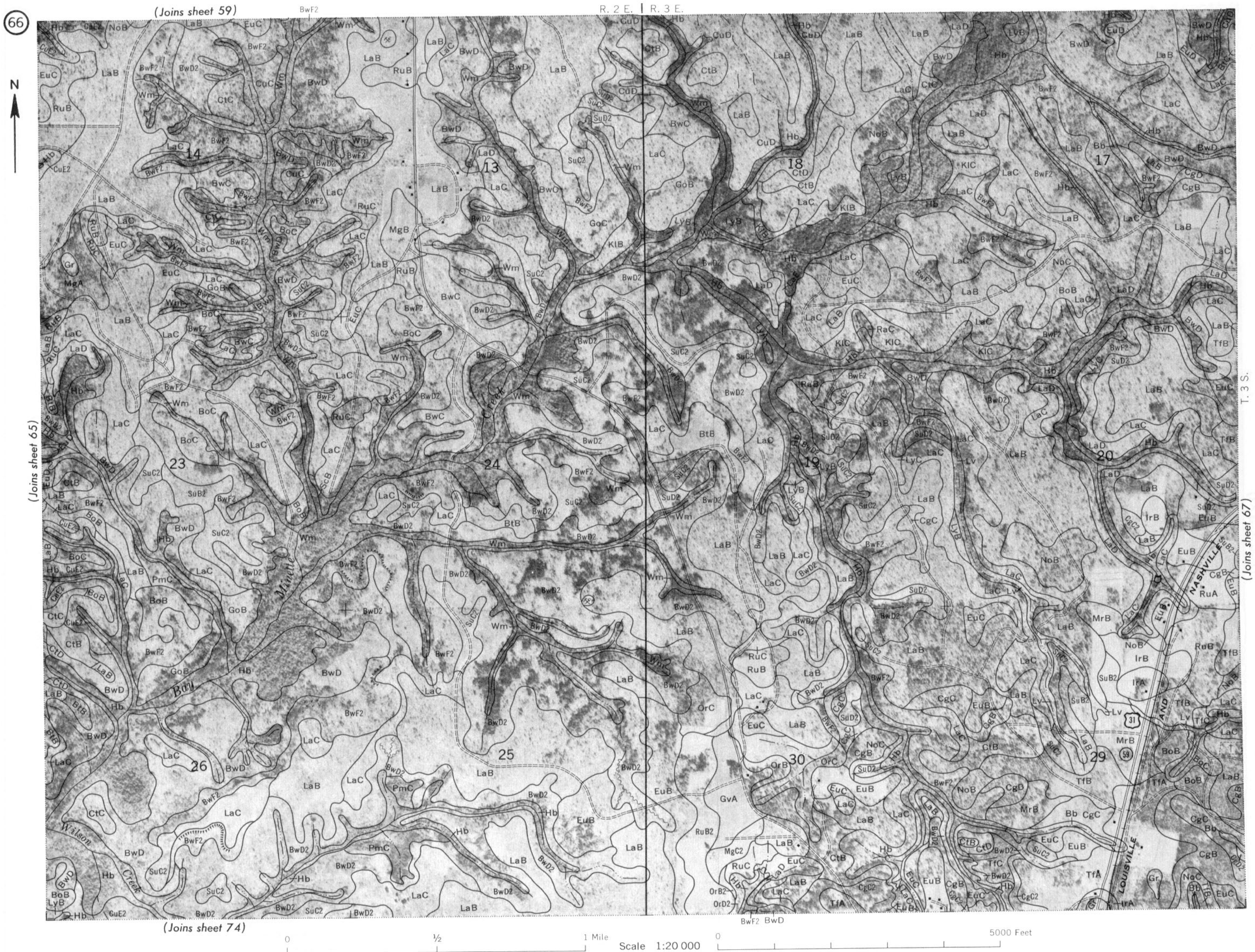
Range, township, and section corners shown on this map are indefinite.

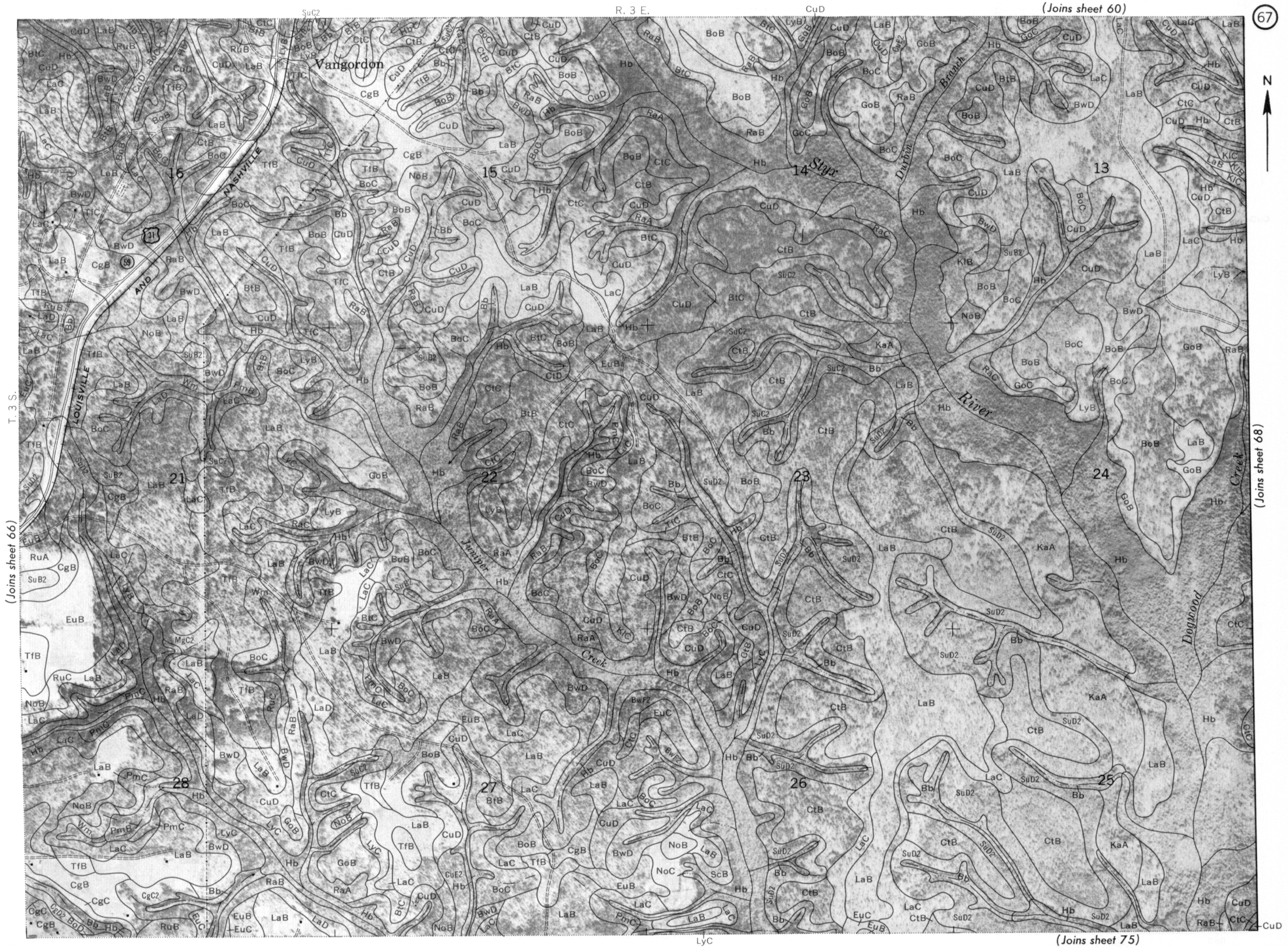

64
(Joins sheet 57)
R. 1 E.
N
CHUCKFEE BAY
SAND BAYOU
OAK BAYOU
Gravine Island
RIVER
CHICORY BAYOU
STAUTER CREEK
RAFT RIVER
TENSAW RIVER
(Joins sheet 63)
T. 3 S.
(Joins sheet 65)
GRAND BAY
BIG JOHN BAY
CRAB CREEK
THREEMILE CREEK
ONEMILE BAYOU
21
22
27
28
26
38
42
39
Wc
Td
Re
CuD
(Joins sheet 72)
0
½
1 Mile
Scale 1:20 000
0
5000 Feet

Range, township, and section corners shown on this map are indefinite.

65

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet


66
(Joins sheet 59)
R. 2 E.
R. 3 E.
N
(Joins sheet 65)
(Joins sheet 67)
T. 3 S.
(Joins sheet 74)
Minette
Bay
Creek
Wilson
Creek
LOUISVILLE
AND
NASHVILLE
0
½
1 Mile
Scale 1:20 000
0
5000 Feet



0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

This map is one of a set compiled in 1962, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

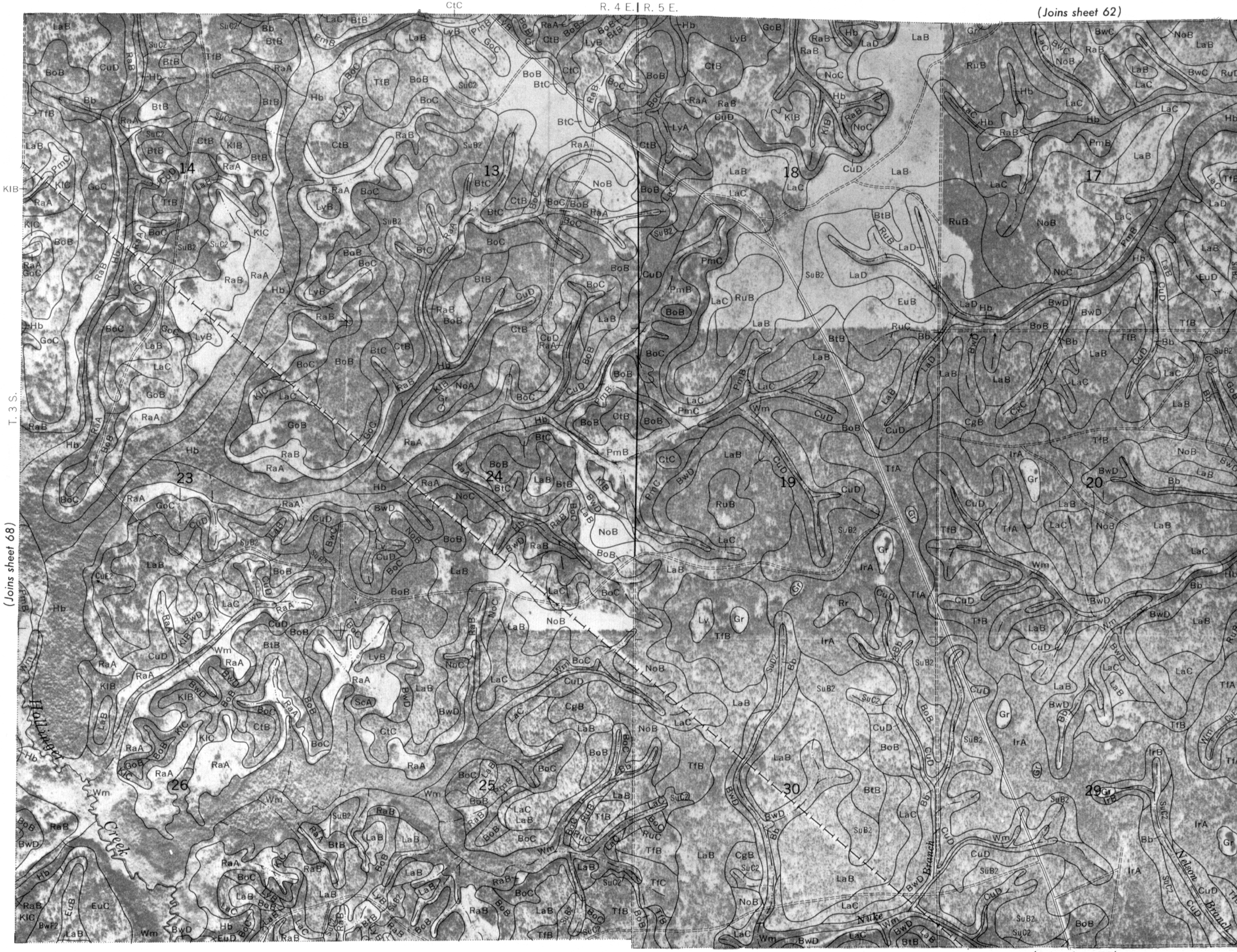
Range, township, and section corners shown on this map are indefinite.


68
(Joins sheet 61)
R. 4 E.
N
(Joins sheet 67)
T. 3 S.
(Joins sheet 69)
(Joins sheet 76)
Dogwood Creek
Hollinger Creek
Flat Creek
15
16
17
18
19
20
21
22
27
28
29
30
37
0
½
1 Mile
Scale 1:20 000
0
5000 Feet

69

R. 4 E. | R. 5 E.

(Joins sheet 62)



(Joins sheet 68)

(Joins sheet 70)

(Joins sheet 77)

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

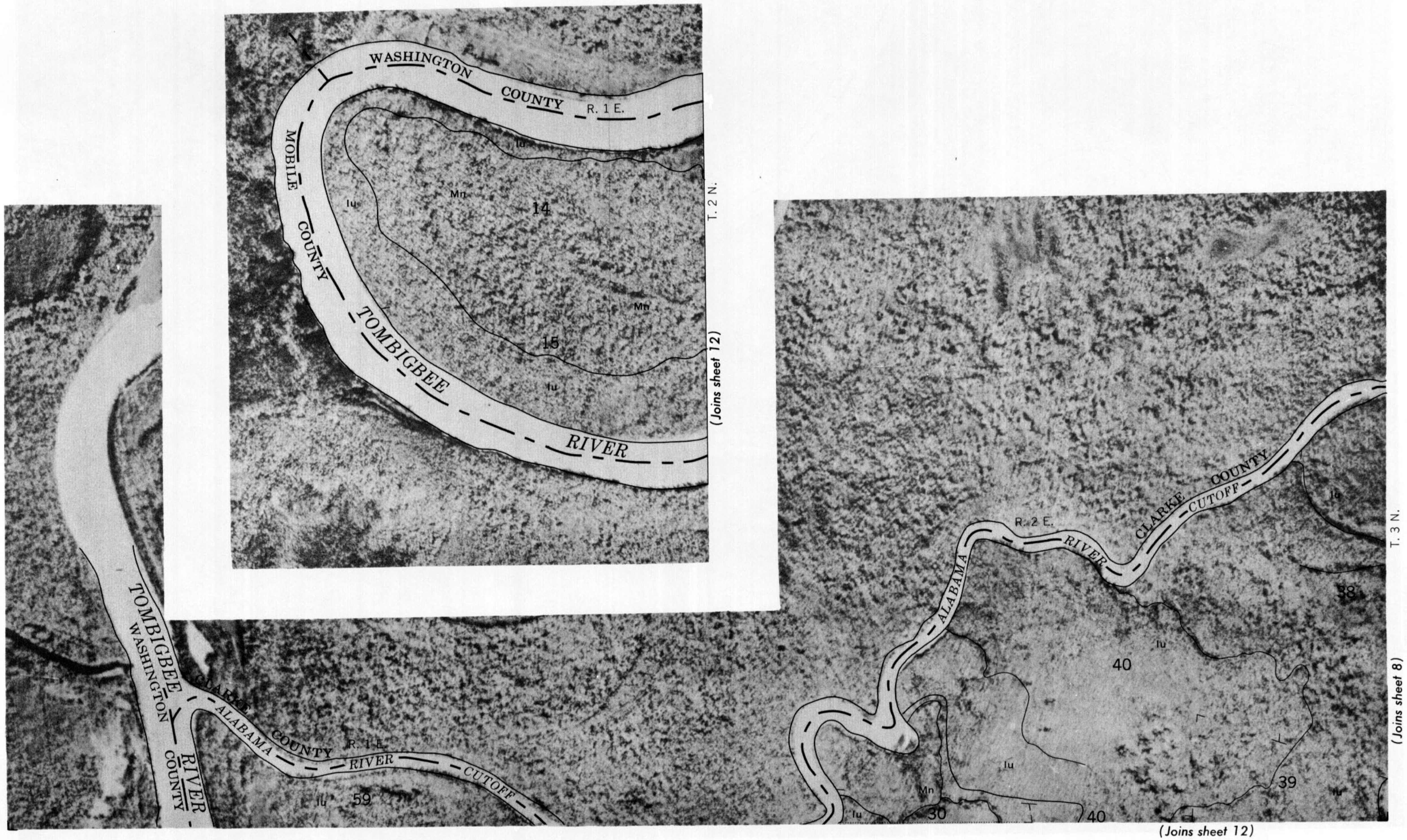
This map is one of a set compiled in 1962, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.

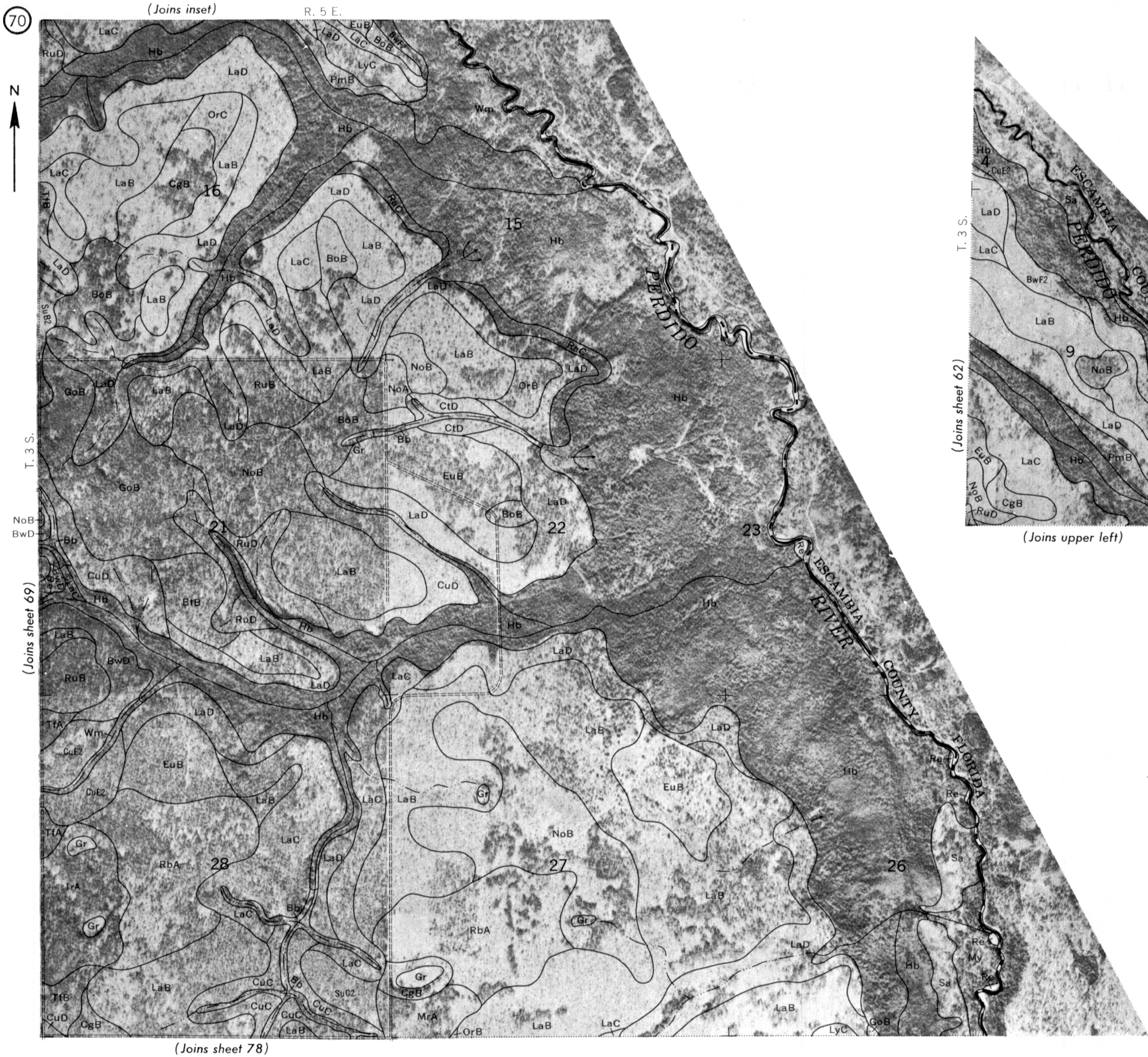
7

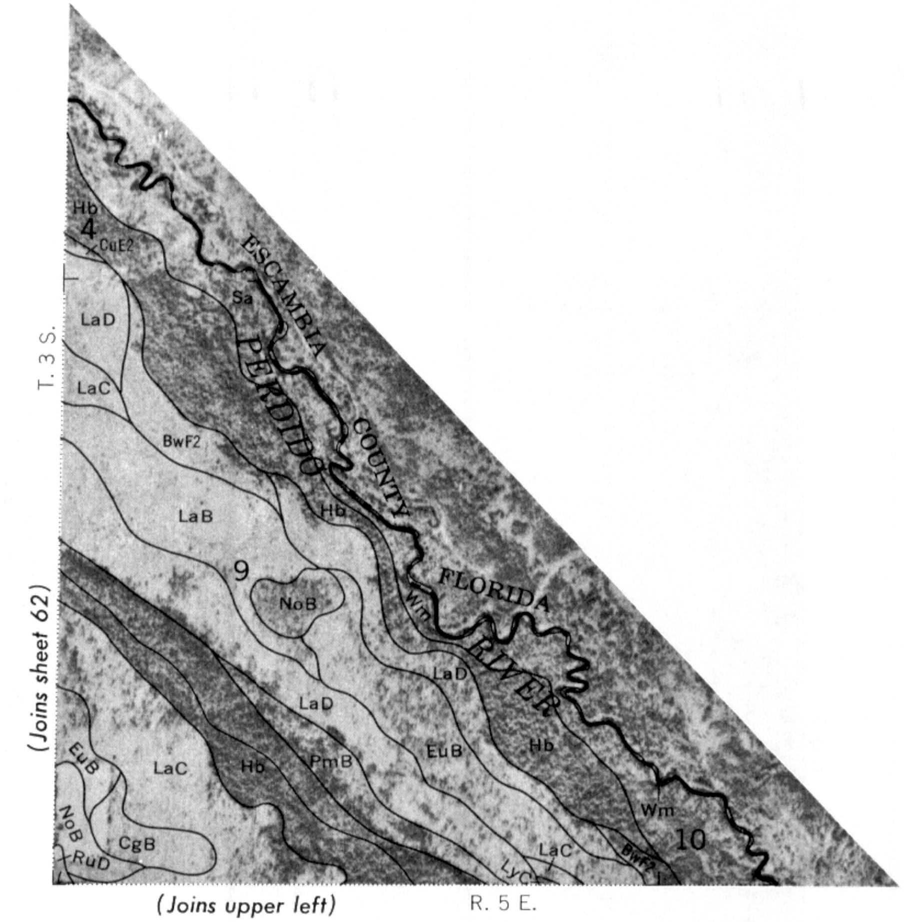
This map is one of a set compiled in 1962, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.



0 ½ 1 Mile Scale 1:20000 0 5000 Feet





0 ½ 1 Mile

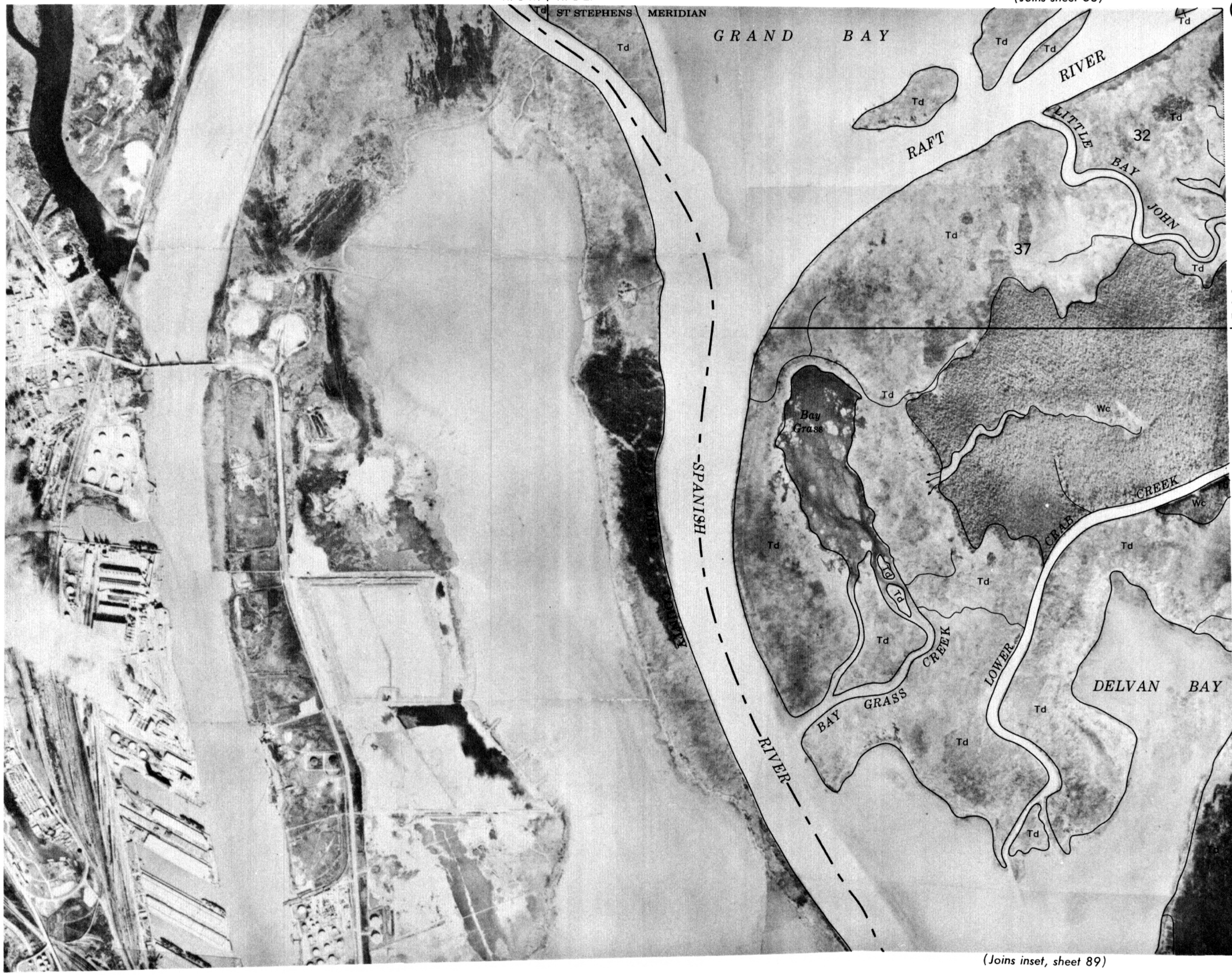
Scale 1:20 000

0 5000 Feet

R. 1 W. | R. 1 E.

(Joins sheet 63)

71



(Joins sheet 72)

(Joins inset, sheet 89)

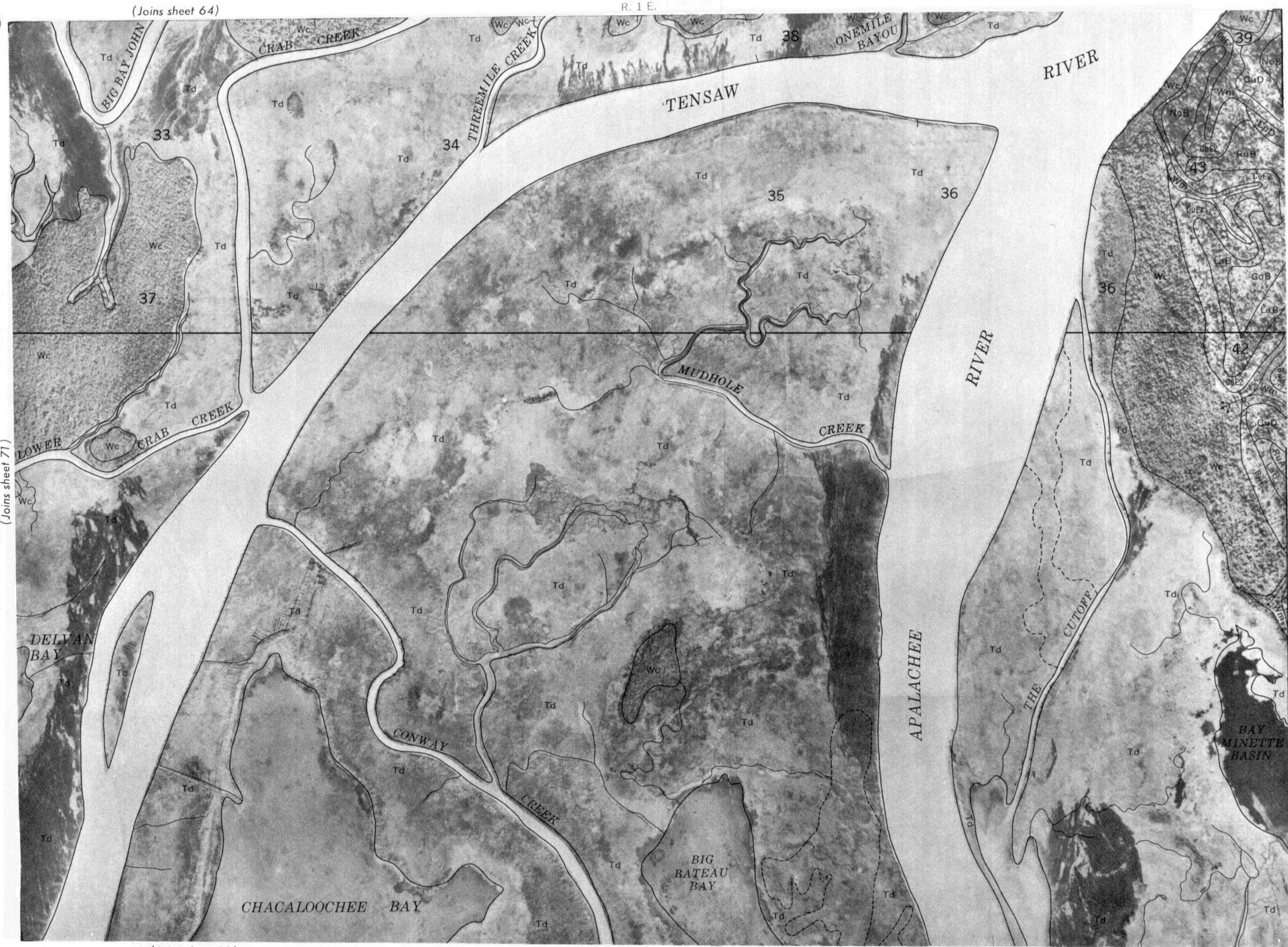
This map is one of a set compiled in 1962, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.

0 ½ 1 Mile

Scale 1:20 000

0 5000 Feet



0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

R. 2 E.

(Joins sheet 65)

73

(Joins sheet 72)

(Joins sheet 74)

(Joins sheet 81)

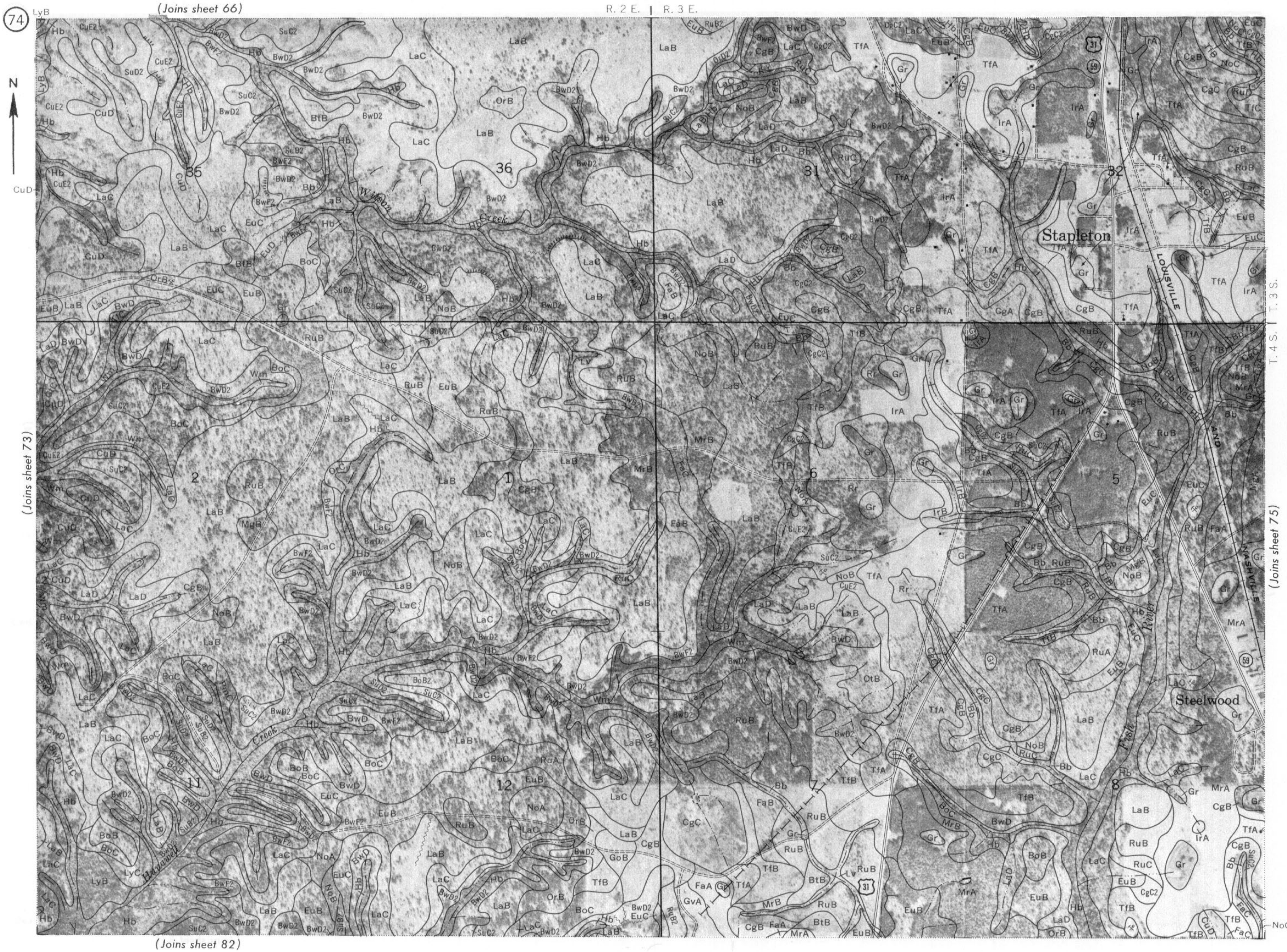
This map is one of a set compiled in 1962, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.

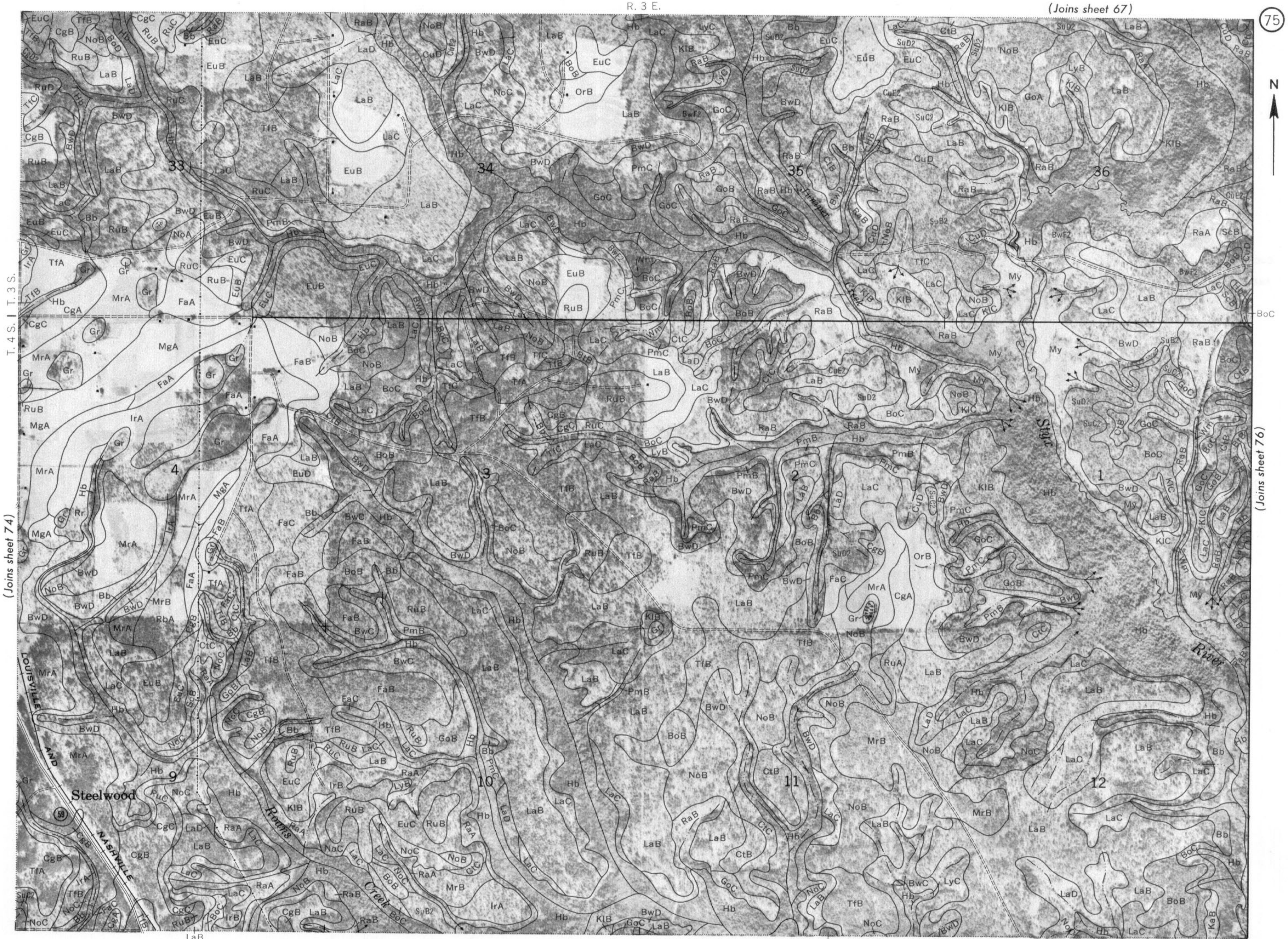
0 ½ 1 Mile

Scale 1:20 000

0 5000 Feet



0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

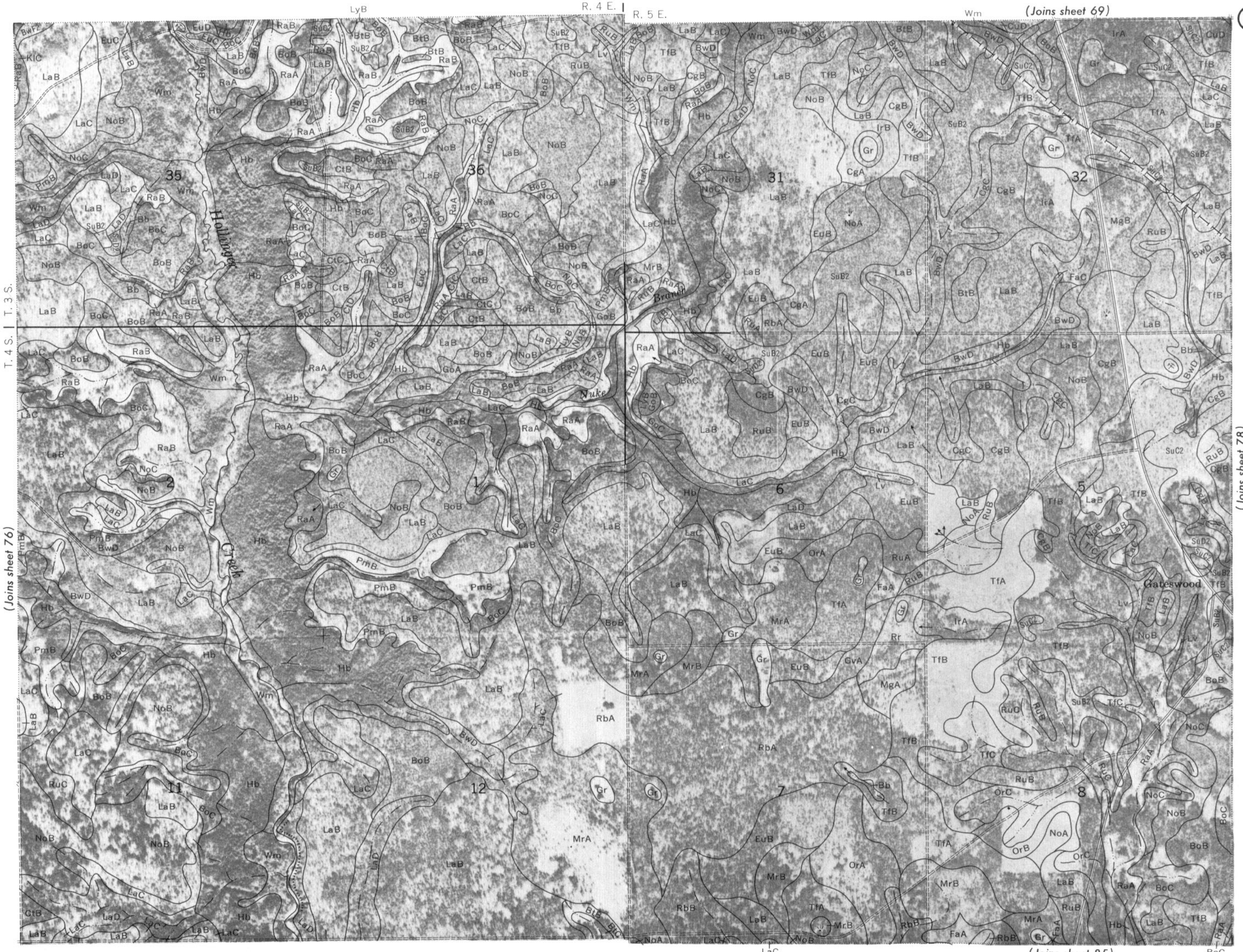


0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

Range, township, and section corners shown on this map are indefinite.

This map is one of a set compiled in 1962, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

BALDWIN COUNTY, ALABAMA — SHEET NUMBER 76



0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

This map is one of a set compiled in 1962, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.


78
(Joins sheet 70)
R. 5 E.
N
(Joins sheet 77)
(Joins sheet 79)
(Joins sheet 86)
T. 3 S.
T. 4 S.
PERDIDO
RIVER
ESCAMBIA COUNTY FLORIDA
Nelson
Branch
Bellefontaine School
33
34
35
36
4
3
2
1
9
10
11
12
0
½
1 Mile
Scale 1:20 000
0
5000 Feet

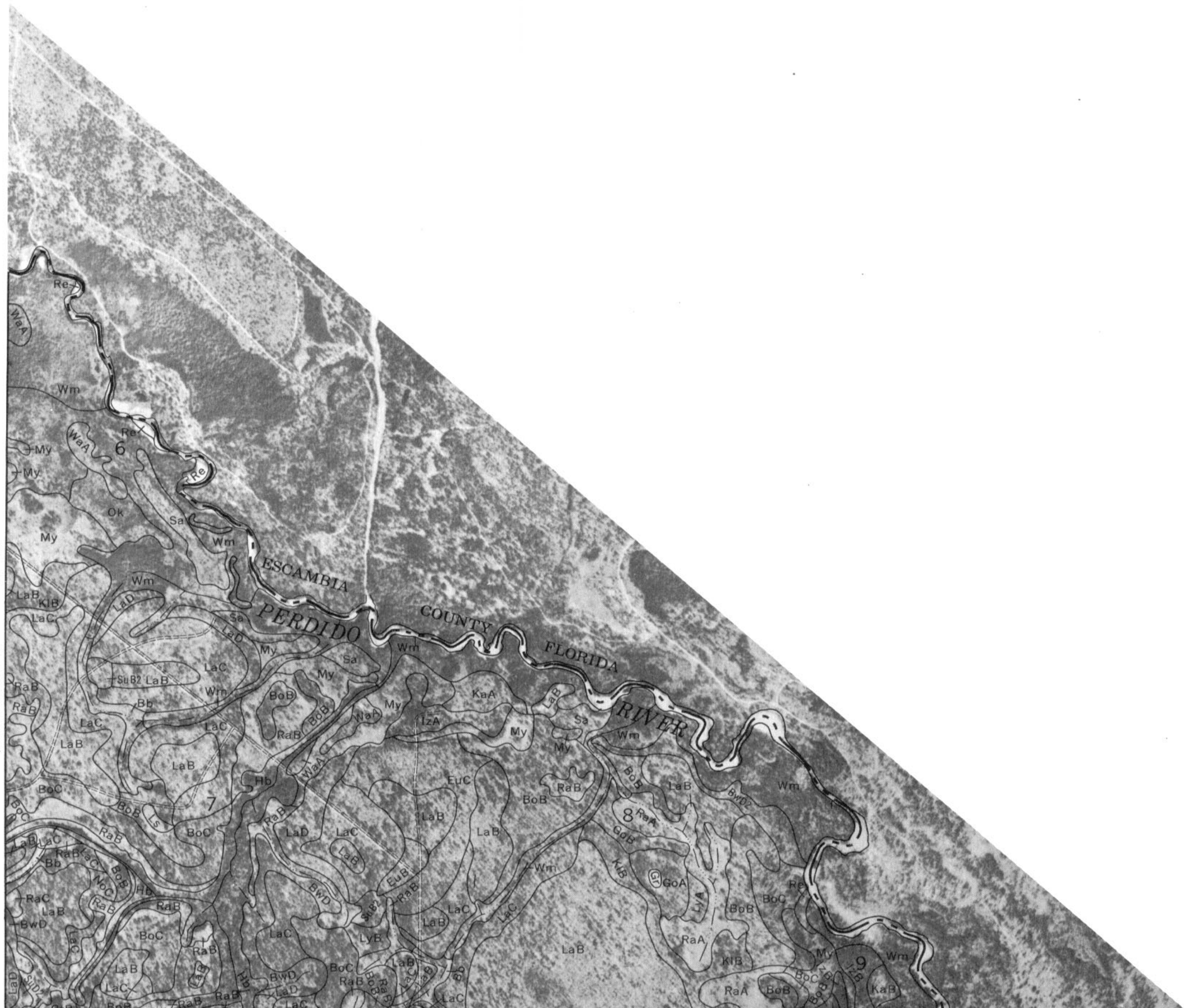
N

This map is one of a set compiled in 1962, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.

T. 4 S.

(Joins sheet 78)



(Joins sheet 87)

R. 6 E.

0 ½ 1 Mile

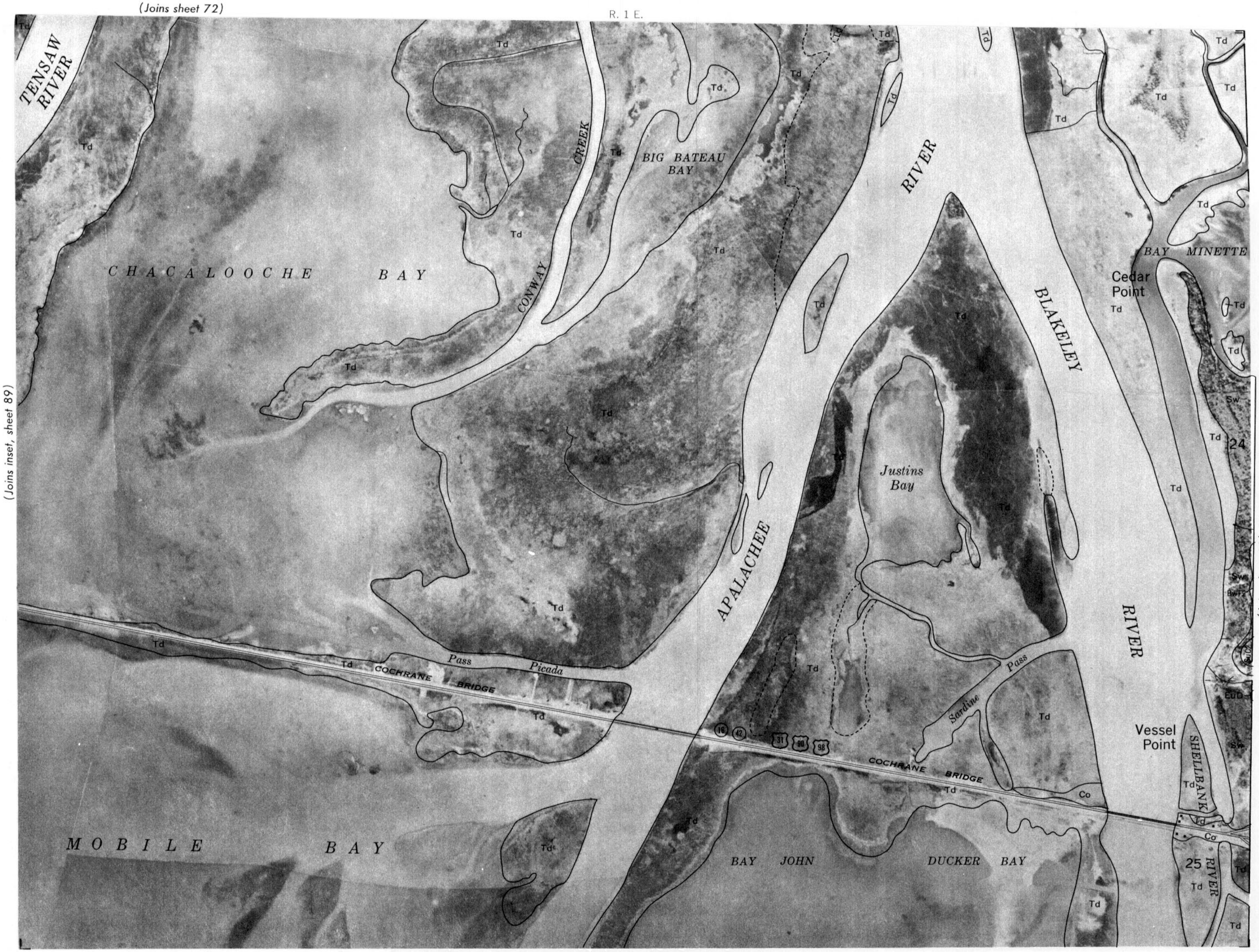
Scale 1:20 000

0 5000 Feet


8
(Joins sheet 3)
R. 2 E.
N
MCDONALD
LOWER LANDING
CLARKE COUNTY
Silver
Lake
BETTS
LANDING
ALABAMA
CLARKE
COUNTY
RIVER
BETTS
LOWER LANDING
Dunn Lake
T. 3 N.
(Joins sheet 9)
HOLLEY
CREEK
WOLF
CUT
Southfield
Lake
Mimms
Lake
ALABAMA
RIVER
CUTOFF
(Joins sheet 7)
Wilkens
Bend
(Joins sheet 13)
15
14
13
21
22
23
24
26
27
28
37
38
46
47
25
Iu
Wc
Mn
Re
LaB
CaB
FwB
FsB
WaB
WaA
Scale 1:20000
0
½
1 Mile
0
5000 Feet

80

(Joins sheet 72)



(Joins sheet 89)

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

(81)

R. 2 E.

(Joins sheet 73)

T. 4 S.

(Joins sheet 80)

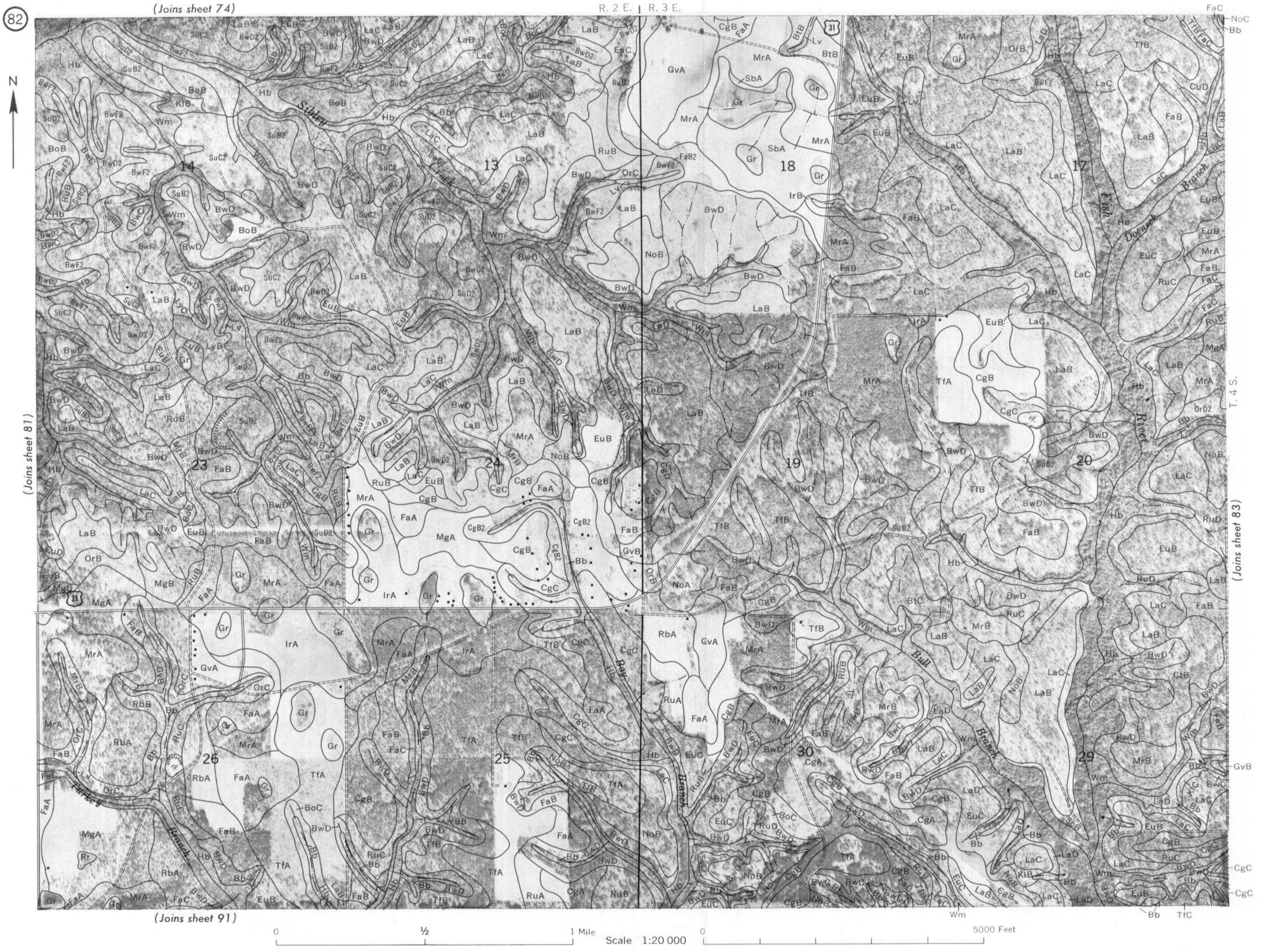
(Joins sheet 82)

(Joins sheet 90)

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

This map is one of a set compiled in 1963, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.


82
(Joins sheet 74)
R. 2 E. | R. 3 E.
N
(Joins sheet 81)
(Joins sheet 83)
(Joins sheet 91)
T. 4 S.
14
13
18
17
23
24
19
20
26
25
30
29
Sibley Creek
Fish River
Doeneck Branch
Bay Branch
Bull Branch
Turkey Branch
0
½
1 Mile
Scale 1:20 000
0
5000 Feet

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

Range, township, and section corners shown on this map are indefinite.

This map is one of a set compiled in 1963, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

0 ½ 1 Mile
Scale 1:20 000
0 5000 Feet

This map is one of a set compiled in 1963, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

86

(Joins sheet 78)

R. 5 E.

N

(Joins sheet 85)

T. 4 S.

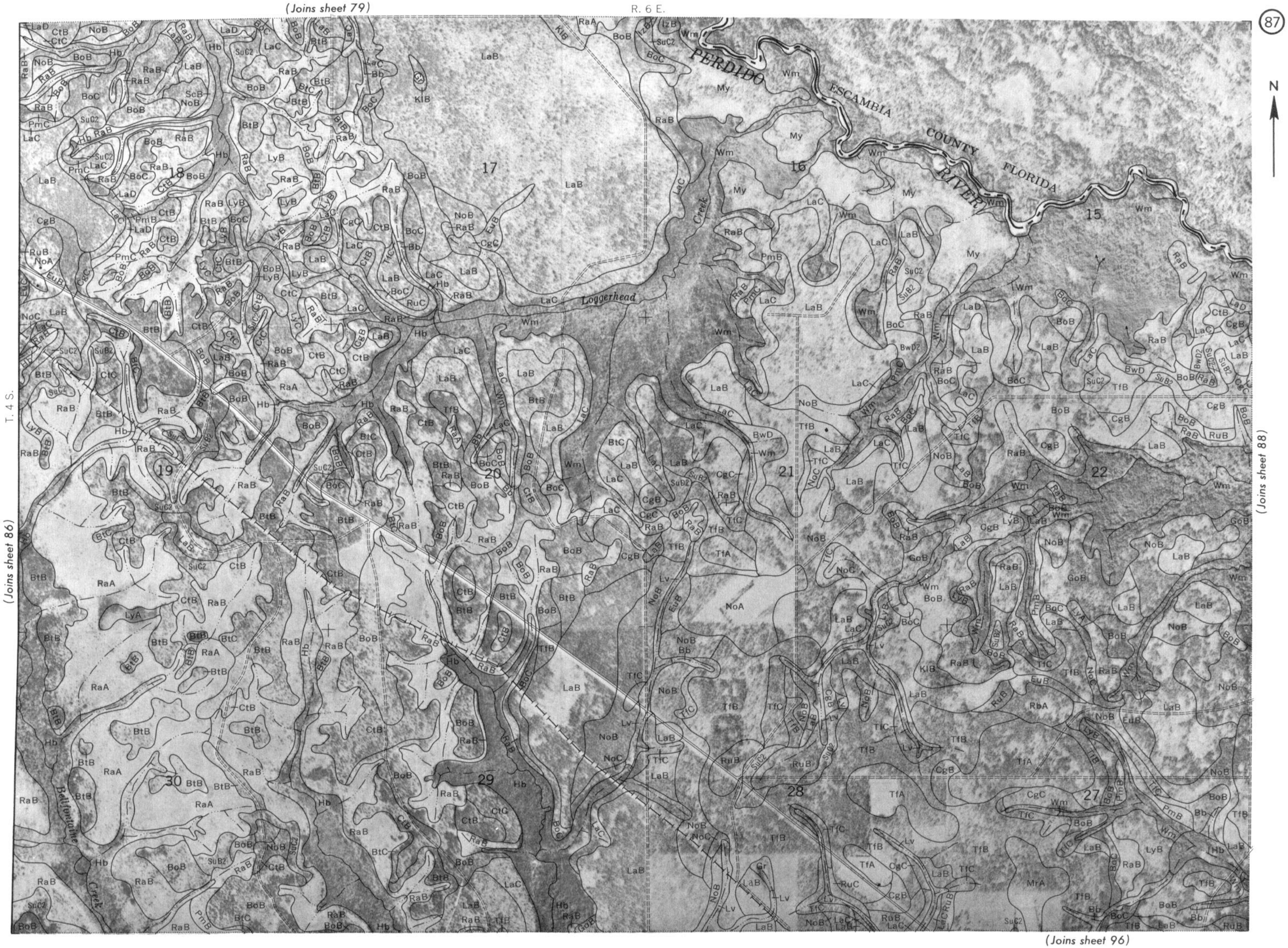
(Joins sheet 87)

(Joins sheet 95)

0 ½ 1 Mile

Scale 1:20 000

0 5000 Feet



0 ½ 1 Mile

Scale 1:20 000

0 5000 Feet

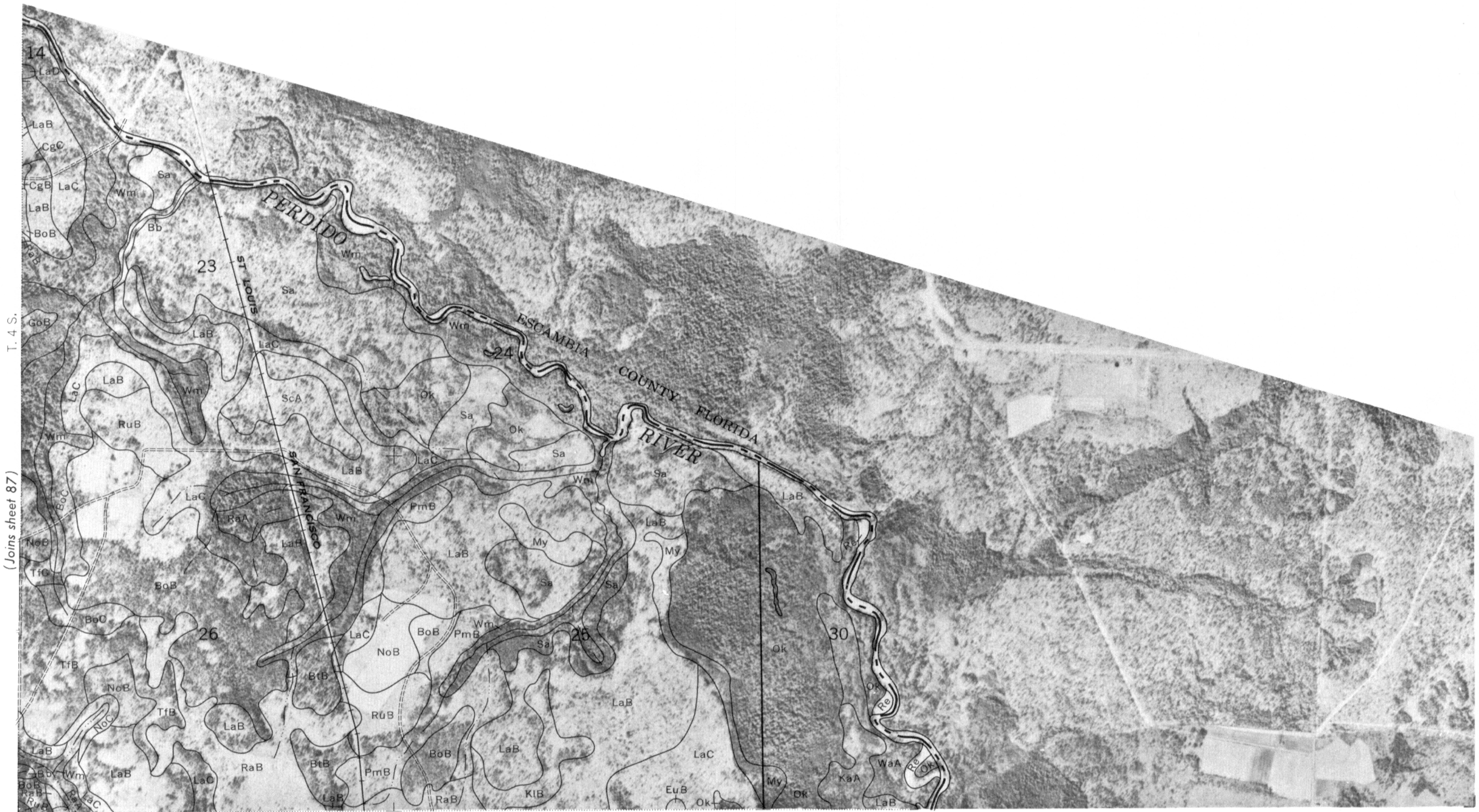
Range, township, and section corners shown on this map are indefinite.

88

N

T. 4 S.

(Joins sheet 87)



(Joins sheet 97)

R. 6 E. | R. 7 E.

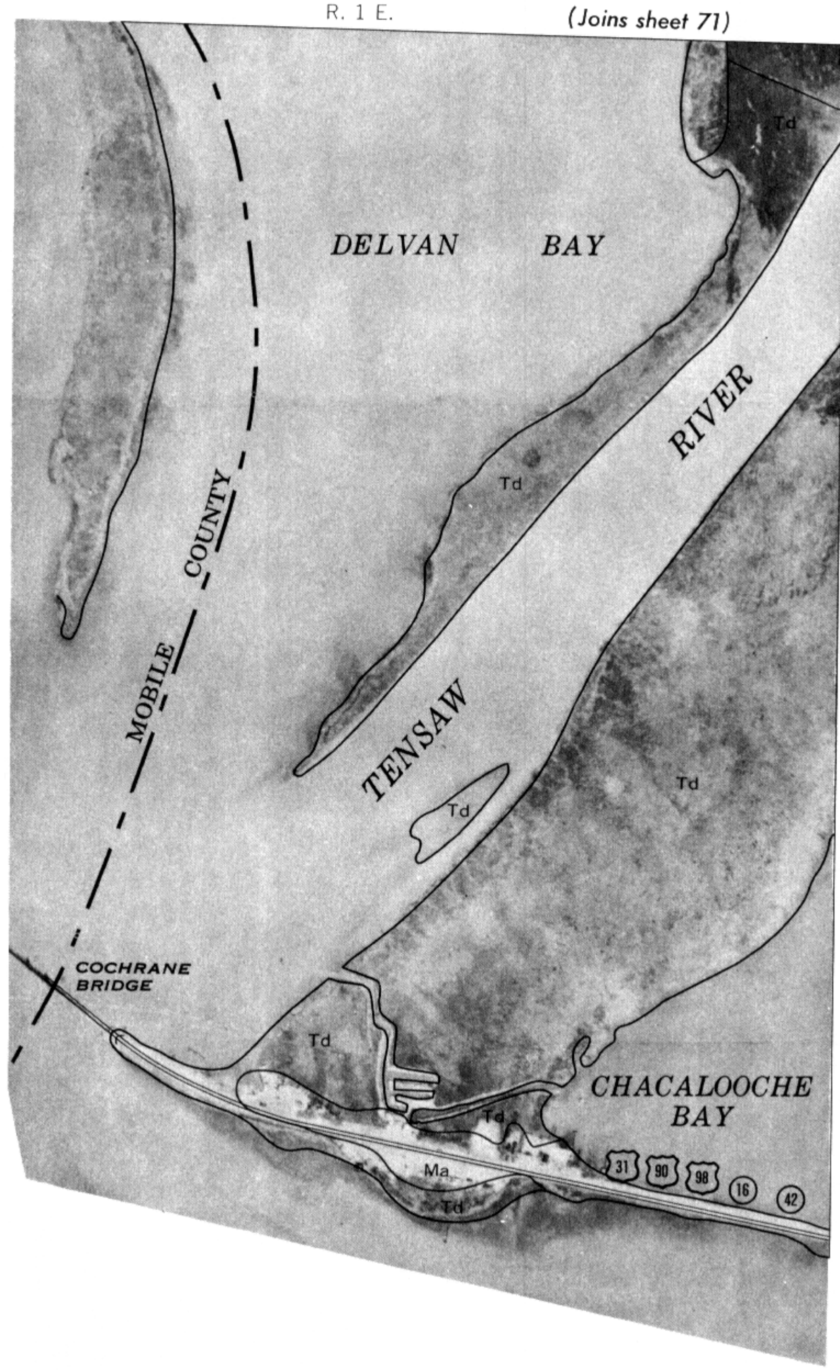
0 ½ 1 Mile

Scale 1:20 000

0 5000 Feet

This map is one of a set compiled in 1963, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.



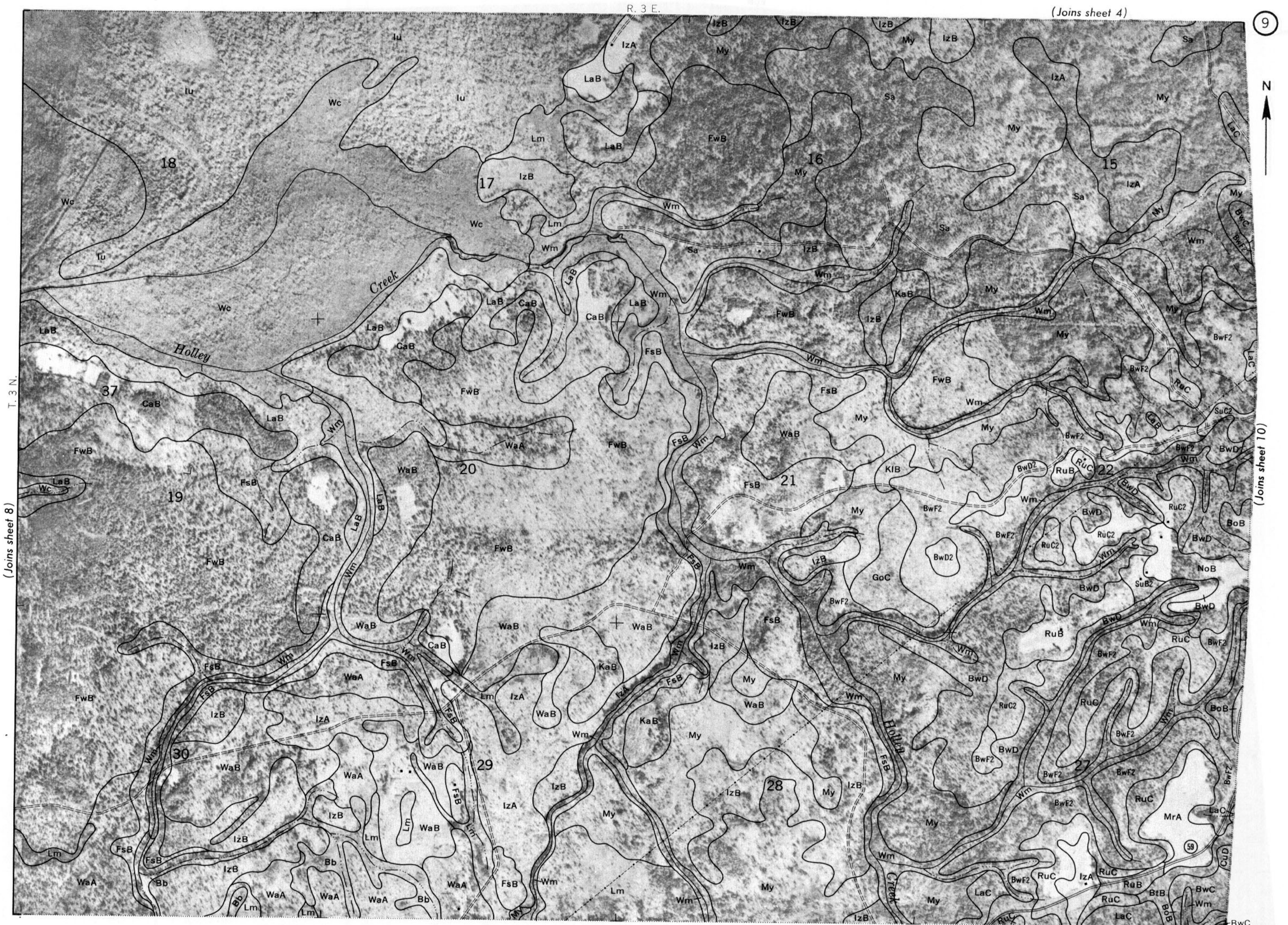
Scale 1:20 000

0 ½ 1 Mile

0 5000 Feet

This map is one of a set compiled in 1962, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.



0 ½ 1 Mile Scale 1:20000 0 5000 Feet

90

0 ½ 1 Mile
Scale 1:20 000
0 5000 Feet

91

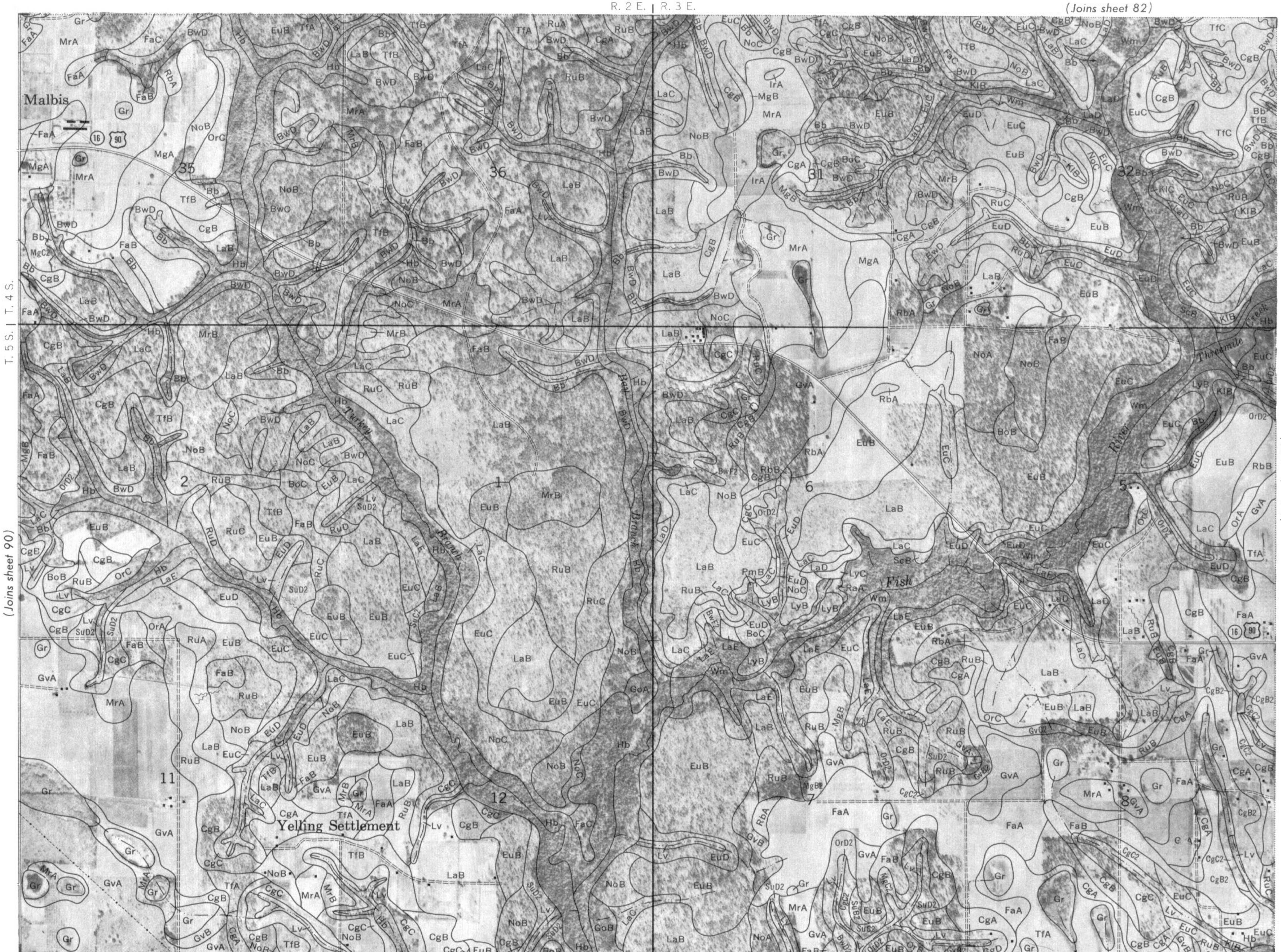
R. 2 E. | R. 3 E.

(Joins sheet 82)

T. 4 S. | T. 5 S.

(Joins sheet 90)

(Joins sheet 92)



(Joins sheet 99)

0 ½ 1 Mile

Scale 1:20 000

0 5000 Feet

N

This map is one of a set compiled in 1963, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.

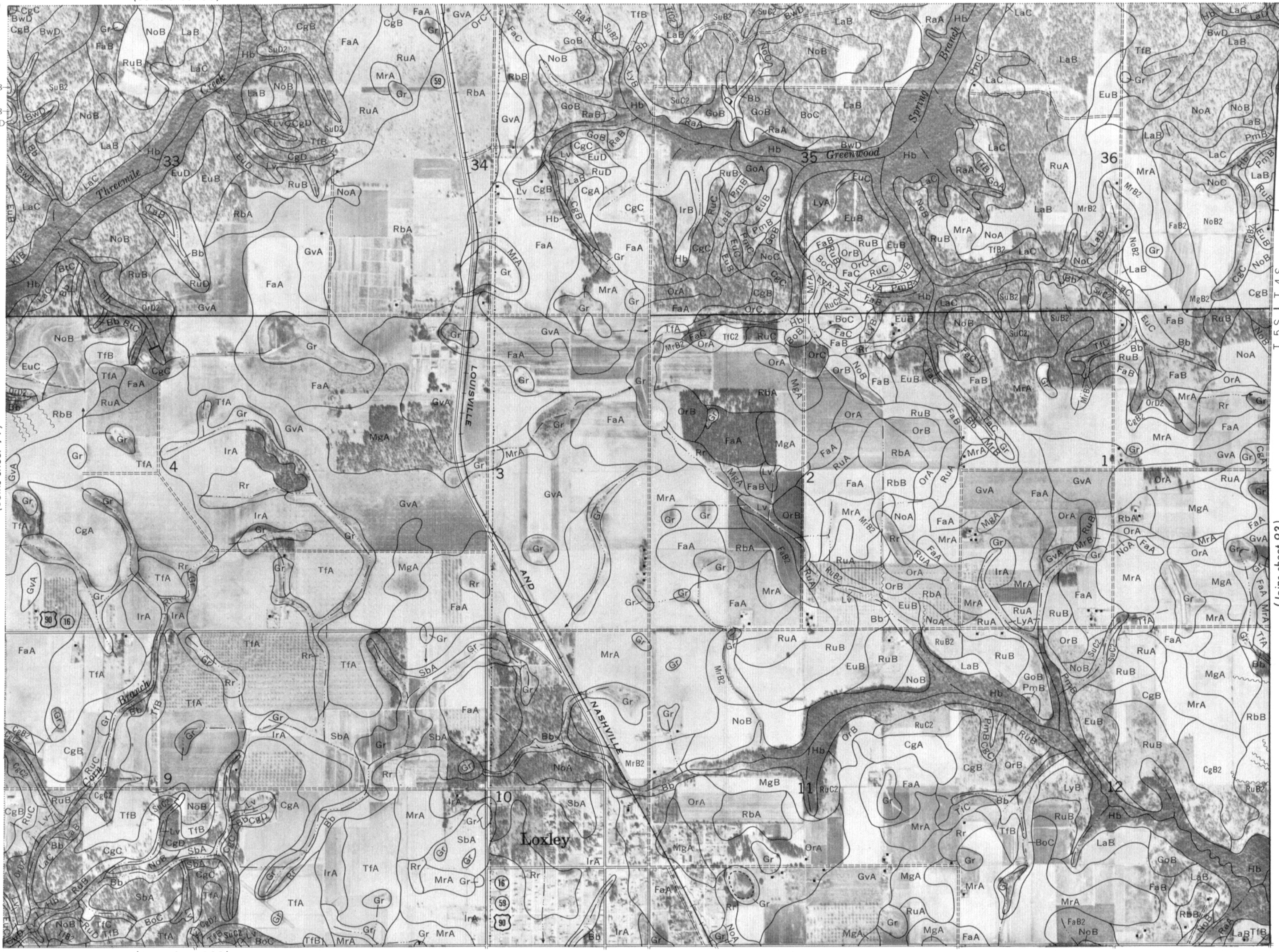
BALDWIN COUNTY, ALABAMA — SHEET NUMBER 92

92

(Joins sheet 83)

R. 3 E.

(Joins sheet 91)



(Joins sheet 93)

(Joins sheet 100)

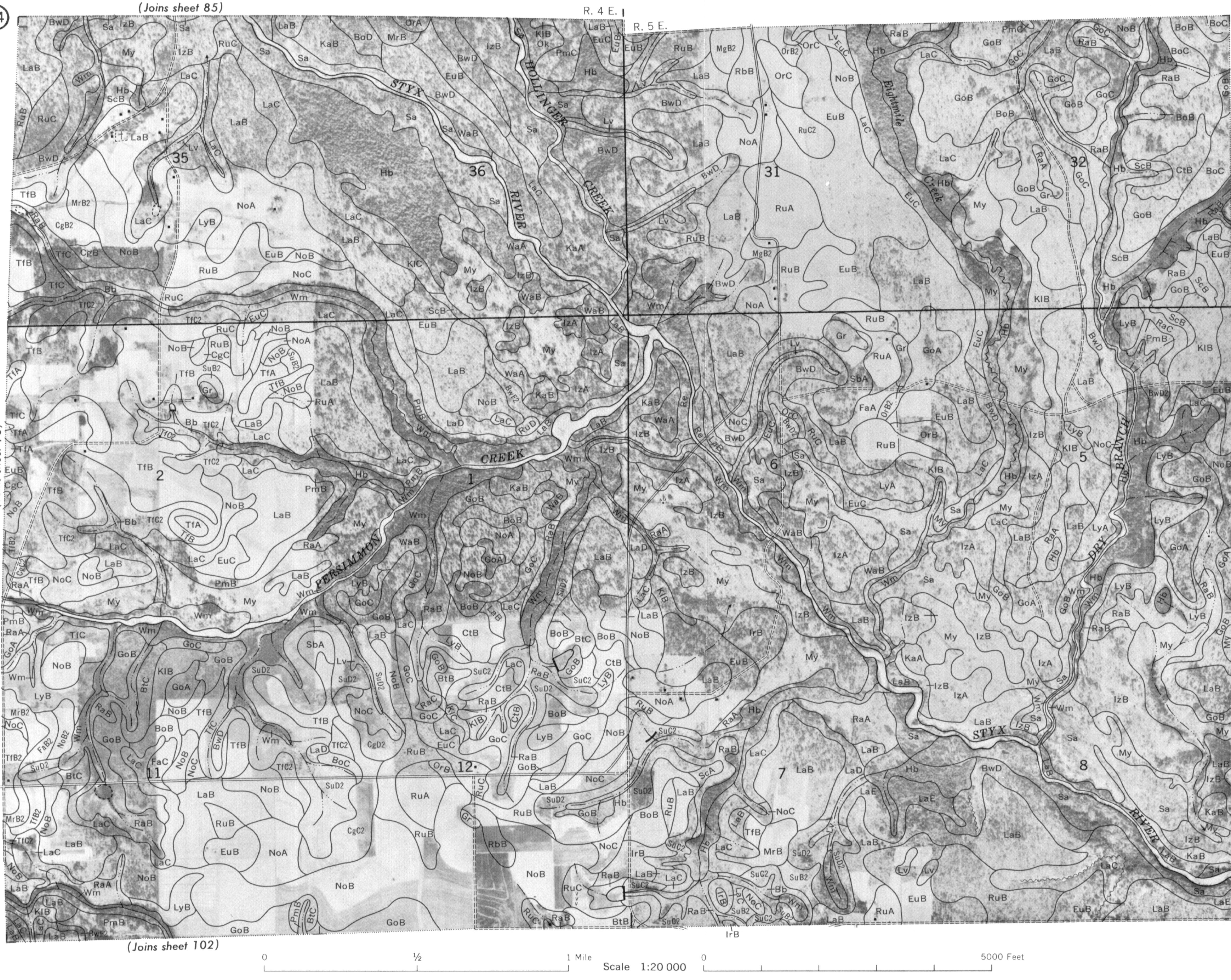
0 ½ 1 Mile

Scale 1:20 000

0 5000 Feet

Range, township, and section corners shown on this map are indefinite.

This map is one of a set compiled in 1963, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.


94
(Joins sheet 85)
(Joins sheet 93)
(Joins sheet 95)
(Joins sheet 102)
N
R. 4 E.
R. 5 E.
T. 4 S.
T. 5 S.
STYX RIVER
HOLLINGER CREEK
Eightmile Creek
PERSIMMON CREEK
DRY BRANCH
35
36
31
32
1
2
6
5
12
11
7
8
0
½
1 Mile
Scale 1:20 000
0
5000 Feet

Scale 1:20 000

0 ½ 1 Mile

0 5000 Feet

This map is one of a set compiled in 1963, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

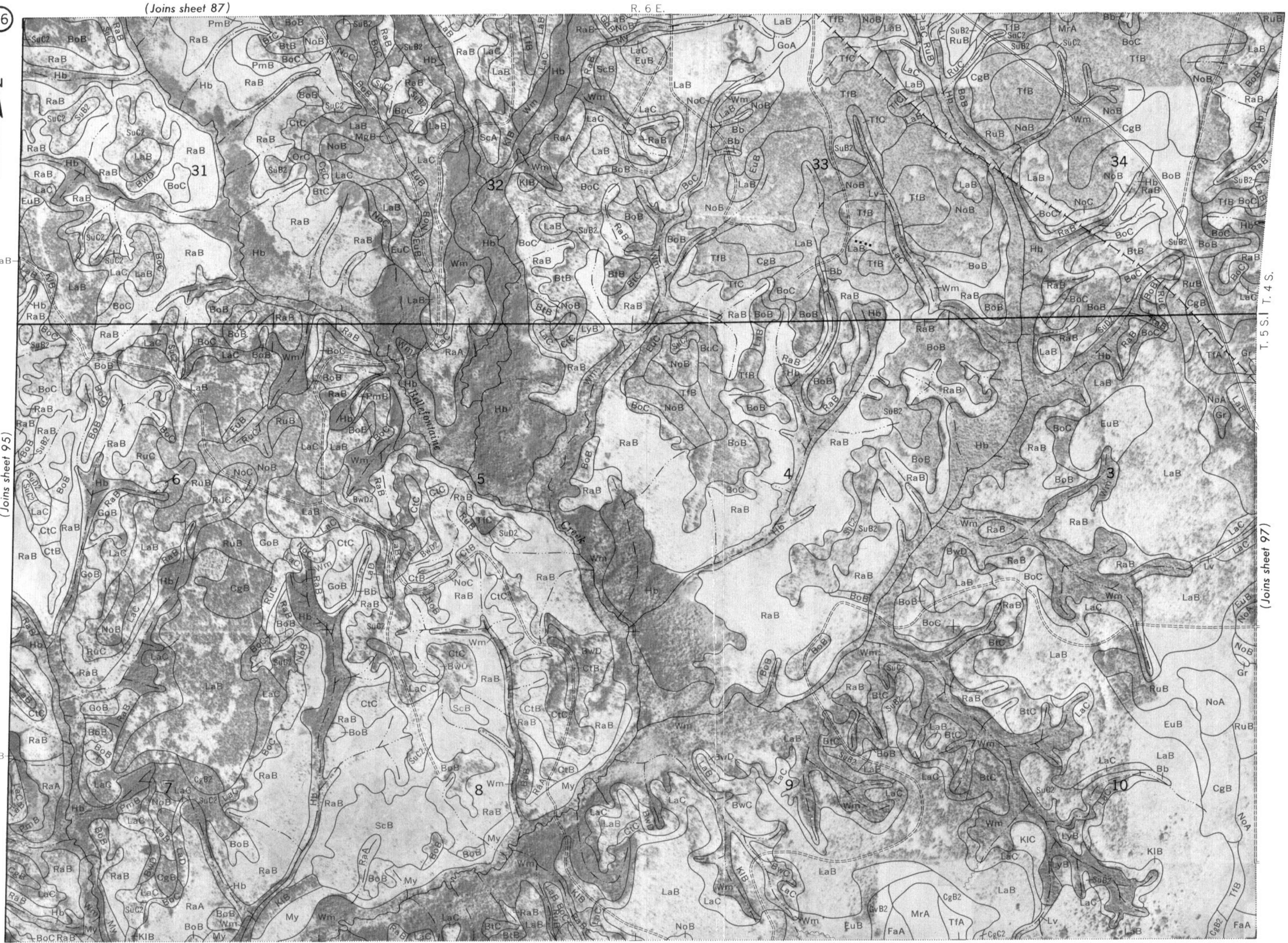
Range, township, and section corners shown on this map are indefinite.

96

(Joins sheet 87)

R. 6 E.

(Joins sheet 95)



(Joins sheet 97)

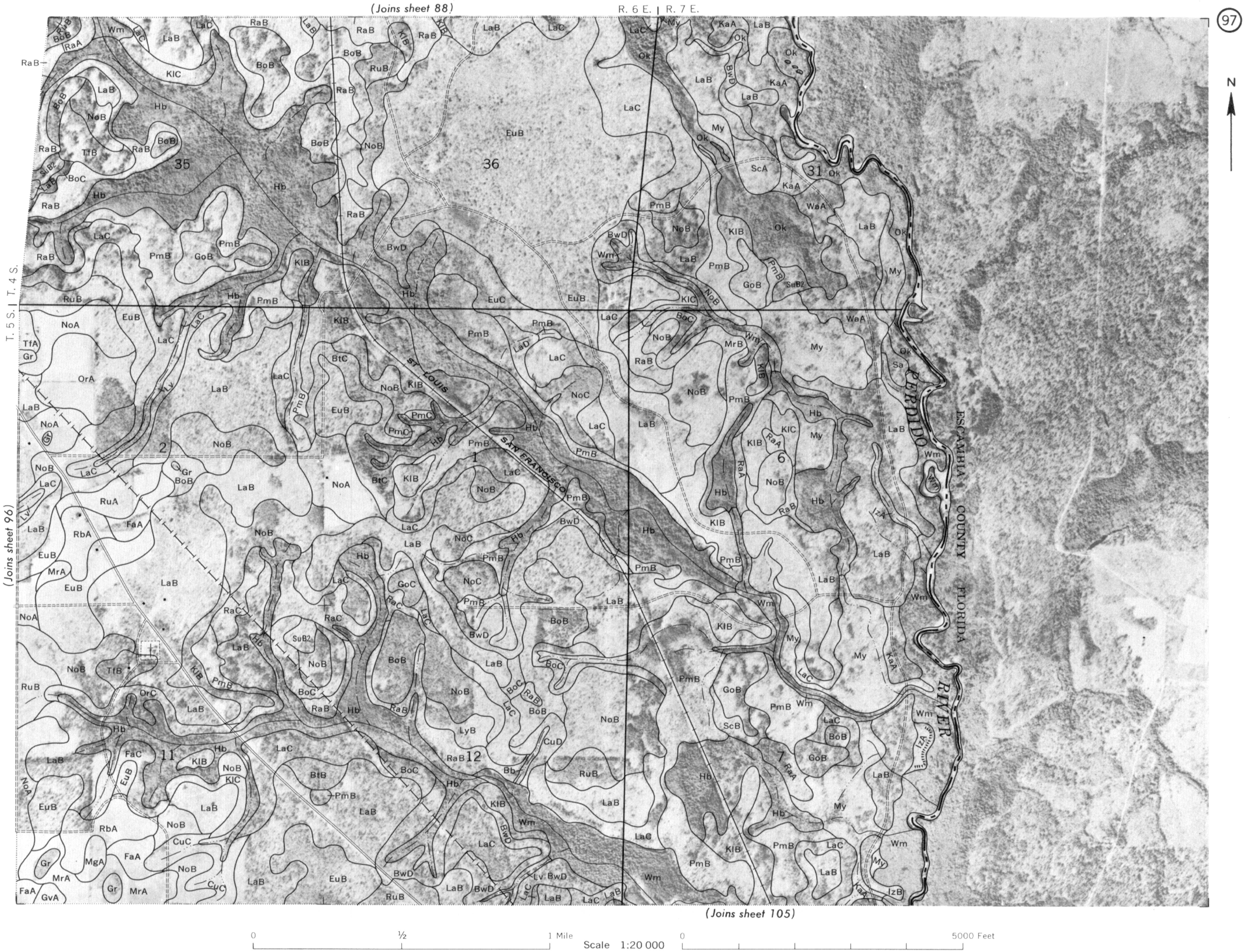
(Joins sheet 104)

0 ½ 1 Mile

Scale 1:20 000

0 5000 Feet

BALDWIN COUNTY, ALABAMA — SHEET NUMBER 97



This map is one of a set compiled in 1963, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

Range, township, and section corners shown on this map are indefinite.

98

(Joins sheet 90)

R. 2 E.

(Joins sheet 106)

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

0 ½ 1 Mile Scale 1:20 000 0 5000 Feet

Range, township, and section corners shown on this map are indefinite.

This map is one of a set compiled in 1963, as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the Alabama Department of Agriculture and Industries and the Alabama Agricultural Experiment Station.

GUIDE TO MAPPING UNITS, CAPABILITY UNITS, WOODLAND SUITABILITY GROUPS, AND RANGE SITES

[See table 4, p. 11, for the approximate acreage and proportionate extent of the soils; see table 6, p. 62, for estimated average acre yields of the soils. For information that is significant to engineering, see p.79]

Map symbol	Soil	Page	Capability unit: Symbol	Capability unit: Page	Woodland group: Number	Woodland group: Page	Range site: Name	Range site: Page
Bb	Bibb and Mantachie soils, local alluvium	13	IVw-11	58	10	72	Coastal Plain Bottom Lands (Canebreaks-Hardwoods)	76
BoB	Bowie fine sandy loam, 2 to 5 percent slopes.	13	IIe-16	53	5	70	Coastal Plain Hills	75
BoB2	Bowie fine sandy loam, 2 to 5 percent slopes, eroded.	14	IIe-16	53	5	70	Coastal Plain Hills	75
BoC	Bowie fine sandy loam, 5 to 8 percent slopes.	14	IIIe-15	55	5	70	Coastal Plain Hills	75
BoD	Bowie fine sandy loam, 8 to 12 percent slopes.	14	IVe-15	58	5	70	Coastal Plain Hills	75
BtB	Bowie fine sandy loam, thin solum, 2 to 5 percent slopes.	14	IIIe-15	55	8	72	Coastal Plain Hills	75
BtC	Bowie fine sandy loam, thin solum, 5 to 8 percent slopes.	15	IVe-15	58	8	72	Coastal Plain Hills	75
BwC	Bowie, Lakeland, and Cuthbert soils, 5 to 8 percent slopes.	15	IVe-15	58	7	71	Coastal Plain Hills	75
BwD	Bowie, Lakeland, and Cuthbert soils, 8 to 12 percent slopes.	15	VIe-19	59	7	71	Coastal Plain Hills	75
BwD2	Bowie, Lakeland, and Cuthbert soils, 8 to 12 percent slopes, eroded.	15	VIe-19	59	7	71	Coastal Plain Hills	75
BwF2	Bowie, Lakeland, and Cuthbert soils, 12 to 25 percent slopes, eroded.	15	VIIe-19	60	7	71	Coastal Plain Hills	75
CaB	Cahaba fine sandy loam, 2 to 5 percent slopes.	16	IIe-12	52	5	70	Coastal Plain Flatwoods	75
CgA	Carnegie very fine sandy loam, 0 to 2 percent slopes.	17	I-11	51	5	70	Coastal Plain Hills	75
CgB	Carnegie very fine sandy loam, 2 to 5 percent slopes.	16	IIe-11	51	5	70	Coastal Plain Hills	75
CgB2	Carnegie very fine sandy loam, 2 to 5 percent slopes, eroded.	17	IIe-11	51	5	70	Coastal Plain Hills	75
CgC	Carnegie very fine sandy loam, 5 to 8 percent slopes.	17	IIIe-11	54	5	70	Coastal Plain Hills	75
CgC2	Carnegie very fine sandy loam, 5 to 8 percent slopes, eroded.	17	IIIe-11	54	5	70	Coastal Plain Hills	75
CgD	Carnegie very fine sandy loam, 8 to 12 percent slopes.	17	IVe-15	58	5	70	Coastal Plain Hills	75
CgD2	Carnegie very fine sandy loam, 8 to 12 percent slopes, eroded.	17	IVe-15	58	5	70	Coastal Plain Hills	75
Co	Coastal beaches	18	VIIIs-11	61	12	73	Coastal Plain Sands	75
CtB	Cuthbert fine sandy loam, 2 to 5 percent slopes.	18	IVs-19	59	7	71	Coastal Plain Hills	75
CtC	Cuthbett fine sandy loam, 5 to 8 percent slopes.	18	VIe-19	59	7	71	Coastal Plain Hills	75
CtD	Cuthbert fine sandy loam, 8 to 12 percent slopes.	19	VIe-19	59	7	71	Coastal Plain Hills	75
CtE	Cuthbert fine sandy loam, 12 to 17 percent slopes.	19	VIIe-19	60	7	71	Coastal Plain Hills	75
CuC	Cuthbert, Bowie, and Sunsweet soils, 5 to 8 percent slopes.	19	VIe-19	59	7	71	Coastal Plain Hills	75
CuD	Cuthbert, Bowie, and Sunsweet soils, 8 to 12 percent slopes.	19	VIe-19	59	7	71	Coastal Plain Hills	75
CuE2	Cuthbert, Bowie, and Sunsweet soils, 12 to 17 percent slopes, eroded.	19	VIIe-19	60	7	71	Coastal Plain Hills	75
EuB	Eustis loamy fine sand, 0 to 5 percent slopes.	20	IIIs-11	57	1	69	Coastal Plain Sands	75
EuC	Eustis loamy fine sand, 5 to 8 percent slopes.	20	IVs-11	58	1	69	Coastal Plain Sands	75
EuD	Eustis loamy fine sand, 8 to 12 percent slopes.	20	VIs-11	60	1	69	Coastal Plain Sands	75
FaA	Faceville fine sandy loam, 0 to 2 percent slopes.	21	I-11	51	5	70	Coastal Plain Hills	75
FaB	Faceville fine sandy loam, 2 to 5 percent slopes.	21	IIe-11	51	5	70	Coastal Plain Hills	75
FaB2	Faceville fine sandy loam, 2 to 5 percent slopes, eroded.	21	IIe-11	51	5	70	Coastal Plain Hills	75
FaC	Faceville fine sandy loam, 5 to 8 percent slopes.	21	IIIe-11	54	5	70	Coastal Plain Hills	75
FaC2	Faceville fine sandy loam, 5 to 8 percent slopes, eroded.	21	IIIe-11	54	5	70	Coastal Plain Hills	75
FsB	Flint silt loam, 2 to 5 percent slopes	22	IIe-13	52	14	73	Coastal Plain Flatwoods	75
FwB	Flint, Wahee, and Leaf silt loams, 0 to 5 percent slopes.	22	IIIw-12	56	14	73	Coastal Plain Flatwoods	75
GoA	Goldsboro fine sandy loam, 0 to 2 percent slopes.	22	IIw-16	54	5	70	Coastal Plain Flatwoods	75
GoB	Goldsboro fine sandy loam, 2 to 5 percent slopes.	23	IIe-16	53	5	70	Coastal Plain Flatwoods	75
GoC	Goldsboro fine sandy loam, 5 to 8 percent slopes.	23	IIIe-16	56	5	70	Coastal Plain Flatwoods	75
Gr	Grady soils	23	IIIw-11	56	4	70	Swamps	76
GvA	Greenville loam, 0 to 2 percent slopes	24	I-11	51	5	70	Coastal Plain Hills	75
GvB	Greenville loam, 2 to 5 percent slopes	24	IIe-11	51	5	70	Coastal Plain Hills	75
GvB2	Greenville loam, 2 to 5 percent slopes, eroded.	24	IIe-11	51	5	70	Coastal Plain Hills	75
GvC2	Greenville loam, 5 to 8 percent slopes, eroded.	24	IIIe-11	54	5	70	Coastal Plain Hills	75
Gw	Gullied land	25	VIIe-19	60	13	73	Coastal Plain Hills	75
Hb	Hyde and Bayboro soils and Muck	25	VIIw-11	60	13	73	Swamps	76
IrA	Irvington loam, 0 to 2 percent slopes	26	IIw-16	54	8	72	Coastal Plain Flatwoods	75
IrB	Irvington loam, 2 to 5 percent slopes	26	IIe-16	53	8	72	Coastal Plain Flatwoods	75
Iu	Iuka silt loam	26	IIw-12	53	9	72	Coastal Plain Bottom Lands (Canebreaks-Hardwoods)	76
IzA	Izagora very fine sandy loam, 0 to 2 percent slopes.	27	IIw-16	54	6	71	Coastal Plain Flatwoods	75
IzB	Izagora very fine sandy loam, 2 to 5 percent slopes.	27	IIe-16	53	6	71	Coastal Plain Flatwoods	75
KaA	Kalmia fine sandy loam, 0 to 2 percent slopes.	27	I-12	51	5	70	Coastal Plain Flatwoods	75
KaB	Kalmia fine sandy loam, 2 to 5 percent slopes.	28	IIe-12	52	5	70	Coastal Plain Flatwoods	75
KlB	Klej loamy fine sand, 0 to 5 percent slopes.	28	IIIs-11	57	3	70	Coastal Plain Flatwoods	75
KlC	Klej loamy fine sand, 5 to 8 percent slopes.	28	IVs-11	58	3	70	Coastal Plain Flatwoods	75
LaB	Lakeland loamy fine sand, 0 to 5 percent slopes.	29	IIIs-11	57	1	69	Coastal Plain Sands	75
LaC	Lakeland loamy fine sand, 5 to 8 percent slopes.	29	IVs-11	58	1	69	Coastal Plain Sands	75
LaD	Lakeland loamy fine sand, 8 to 12 percent slopes.	29	VIs-11	60	1	69	Coastal Plain Sands	75
LaE	Lakeland loamy fine sand, 12 to 17 percent slopes.	29	VIIs-11	61	1	69	Coastal Plain Sands	75
LkB	Lakewood sand, 0 to 5 percent slopes	30	VIs-12	60	2	70	Coastal Plain Sands	75
Lm	Leaf silt loam	30	IVw-11	58	4	70	Coastal Plain Flatwoods	75
Ls	Leon sand	30	Vw-11	59	11	73	Coastal Plain Flatwoods	75
Lv	Local alluvial land	31	IIw-11	53	9	72	Coastal Plain Bottom Lands (Canebreaks-Hardwoods).	76
LyA	Lynchburg fine sandy loam, 0 to 2 percent slopes.	31	IIw-17	54	6	71	Coastal Plain Flatwoods	75
LyB	Lynchburg fine sandy loam, 2 to 5 percent slopes.	31	IIe-16	53	6	71	Coastal Plain Flatwoods	75
LyC	Lynchburg fine sandy loam, 5 to 8 percent slopes.	32	IIIe-16	56	6	71	Coastal Plain Flatwoods	75
Ma	Made land	32	VIIIs-11	61	12	73	(Not placed in a range site)	
MgA	Magnolia fine sandy loam, 0 to 2 percent slopes.	32	I-11	51	5	70	Coastal Plain Hills	75
MgB	Magnolia fine sandy loam, 2 to 5 percent slopes.	32	IIe-11	51	5	70	Coastal Plain Hills	75
MgB2	Magnolia fine sandy loam, 2 to 5 percent slopes, eroded.	32	IIe-11	51	5	70	Coastal Plain Hills	75
MgC2	Magnolia fine sandy loam, 5 to 8 percent slopes, eroded.	32	IIIe-11	54	5	70	Coastal Plain Hills	75
Mn	Mantachie silt loam	33	IVw-11	58	10	72	Coastal Plain Bottom Lands (Canebreaks-Hardwoods)	76
MrA	Marlboro very fine sandy loam, 0 to 2 percent slopes.	33	I-11	51	5	70	Coastal Plain Hills	75
MrB	Marlboro very fine sandy loam, 2 to 5 percent slopes.	34	IIe-11	51	5	70	Coastal Plain Hills	75
MrB2	Marlboro very fine sandy loam, 2 to 5 percent slopes, eroded.	34	IIe-11	51	5	70	Coastal Plain Hills	75
My	Myatt very fine sandy loam	35	IVw-11	58	4	70	Coastal Plain Flatwoods	75
NoA	Norfolk fine sandy loam, 0 to 2 percent slopes.	36	I-12	51	5	70	Coastal Plain Hills	75
NoB	Norfolk fine sandy loam, 2 to 5 percent slopes.	35	IIe-12	52	5	70	Coastal Plain Hills	75
NoB2	Norfolk fine sandy loam, 2 to 5 percent slopes, eroded.	36	IIe-12	52	5	70	Coastal Plain Hills	75
NoC	Norfolk fine sandy loam, 5 to 8 percent slopes.	36	IIIe-12	55	5	70	Coastal Plain Hills	75
Ok	Okenee soils	36	IIIw-11	56	4	70	Coastal Plain Flatwoods	75

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

BALDWIN COUNTY, ALABAMA

ALABAMA DEPARTMENT OF AGRICULTURE AND INDUSTRIES
ALABAMA AGRICULTURAL EXPERIMENT STATION

SOIL LEGEND

The first capital letter is the initial one of the soil name. The second capital letter shows the slope. Most soils without a slope letter are for nearly level soils, but some are for soils or land types that have a considerable range in slope. A final number, 2, in the symbol, shows that the soil is eroded.

SYMBOL	NAME
Bb	Bibb and Mantachie soils, local alluvium
BoB	Bowie fine sandy loam, 2 to 5 percent slopes
BoB2	Bowie fine sandy loam, 2 to 5 percent slopes, eroded
BoC	Bowie fine sandy loam, 5 to 8 percent slopes
BoD	Bowie fine sandy loam, 8 to 12 percent slopes
BtB	Bowie fine sandy loam, thin solum, 2 to 5 percent slopes
BtC	Bowie fine sandy loam, thin solum, 5 to 8 percent slopes
BwC	Bowie, Lakeland, and Cuthbert soils, 5 to 8 percent slopes
BwD	Bowie, Lakeland, and Cuthbert soils, 8 to 12 percent slopes
BwD2	Bowie, Lakeland, and Cuthbert soils, 8 to 12 percent slopes, eroded
BwF2	Bowie, Lakeland, and Cuthbert soils, 12 to 25 percent slopes, eroded
CaB	Cahaba fine sandy loam, 2 to 5 percent slopes
CgA	Carnegie very fine sandy loam, 0 to 2 percent slopes
CgB	Carnegie very fine sandy loam, 2 to 5 percent slopes
CgB2	Carnegie very fine sandy loam, 2 to 5 percent slopes, eroded
CgC	Carnegie very fine sandy loam, 5 to 8 percent slopes
CgC2	Carnegie very fine sandy loam, 5 to 8 percent slopes, eroded
CgD	Carnegie very fine sandy loam, 8 to 12 percent slopes
CgD2	Carnegie very fine sandy loam, 8 to 12 percent slopes, eroded
Co	Coastal beaches
CtB	Cuthbert fine sandy loam, 2 to 5 percent slopes
CtC	Cuthbert fine sandy loam, 5 to 8 percent slopes
CtD	Cuthbert fine sandy loam, 8 to 12 percent slopes
CtE	Cuthbert fine sandy loam, 12 to 17 percent slopes
CuC	Cuthbert, Bowie, and Sunsweet soils, 5 to 8 percent slopes
CuD	Cuthbert, Bowie, and Sunsweet soils, 8 to 12 percent slopes
CuE2	Cuthbert, Bowie, and Sunsweet soils, 12 to 17 percent slopes, eroded
EuB	Eustis loamy fine sand, 0 to 5 percent slopes
EuC	Eustis loamy fine sand, 5 to 8 percent slopes
EuD	Eustis loamy fine sand, 8 to 12 percent slopes
FaA	Faceville fine sandy loam, 0 to 2 percent slopes
FaB	Faceville fine sandy loam, 2 to 5 percent slopes
FaB2	Faceville fine sandy loam, 2 to 5 percent slopes, eroded
FaC	Faceville fine sandy loam, 5 to 8 percent slopes
FaC2	Faceville fine sandy loam, 5 to 8 percent slopes, eroded
FsB	Flint silt loam, 2 to 5 percent slopes
FwB	Flint, Wahee, and Leaf silt loams, 0 to 5 percent slopes
GoA	Goldsboro fine sandy loam, 0 to 2 percent slopes
GoB	Goldsboro fine sandy loam, 2 to 5 percent slopes
GoC	Goldsboro fine sandy loam, 5 to 8 percent slopes
Gr	Grady soils
GvA	Greenville loam, 0 to 2 percent slopes
GvB	Greenville loam, 2 to 5 percent slopes
GvB2	Greenville loam, 2 to 5 percent slopes, eroded
GvC2	Greenville loam, 5 to 8 percent slopes, eroded
Gw	Gullied land
Hb	Hyde and Bayboro soils and Muck
IrA	Irvington loam, 0 to 2 percent slopes
IrB	Irvington loam, 2 to 5 percent slopes
Iu	Iuka silt loam
IzA	Izagora very fine sandy loam, 0 to 2 percent slopes
IzB	Izagora very fine sandy loam, 2 to 5 percent slopes
KaA	Kalmia fine sandy loam, 0 to 2 percent slopes
KaB	Kalmia fine sandy loam, 2 to 5 percent slopes
KlB	Klej loamy fine sand, 0 to 5 percent slopes
KlC	Klej loamy fine sand, 5 to 8 percent slopes
LaB	Lakeland loamy fine sand, 0 to 5 percent slopes
LaC	Lakeland loamy fine sand, 5 to 8 percent slopes
LaD	Lakeland loamy fine sand, 8 to 12 percent slopes
LaE	Lakeland loamy fine sand, 12 to 17 percent slopes
LkB	Lakewood sand, 0 to 5 percent slopes
Lm	Leaf silt loam
Ls	Leon sand
Lv	Local alluvial land
LyA	Lynchburg fine sandy loam, 0 to 2 percent slopes
LyB	Lynchburg fine sandy loam, 2 to 5 percent slopes
LyC	Lynchburg fine sandy loam, 5 to 8 percent slopes
Ma	Made land
MgA	Magnolia fine sandy loam, 0 to 2 percent slopes
MgB	Magnolia fine sandy loam, 2 to 5 percent slopes
MgB2	Magnolia fine sandy loam, 2 to 5 percent slopes, eroded
MgC2	Magnolia fine sandy loam, 5 to 8 percent slopes, eroded
Mn	Mantachie silt loam
MrA	Marlboro very fine sandy loam, 0 to 2 percent slopes
MrB	Marlboro very fine sandy loam, 2 to 5 percent slopes
MrB2	Marlboro very fine sandy loam, 2 to 5 percent slopes, eroded
My	Myatt very fine sandy loam
NoA	Norfolk fine sandy loam, 0 to 2 percent slopes
NoB	Norfolk fine sandy loam, 2 to 5 percent slopes
NoB2	Norfolk fine sandy loam, 2 to 5 percent slopes, eroded
NoC	Norfolk fine sandy loam, 5 to 8 percent slopes
Ok	Okenee soils
OrA	Orangeburg fine sandy loam, 0 to 2 percent slopes
OrB	Orangeburg fine sandy loam, 2 to 5 percent slopes
OrB2	Orangeburg fine sandy loam, 2 to 5 percent slopes, eroded
OrC	Orangeburg fine sandy loam, 5 to 8 percent slopes
OrD2	Orangeburg fine sandy loam, 8 to 12 percent slopes, eroded
PmB	Plummer loamy sand, 0 to 5 percent slopes
PmC	Plummer loamy sand, 5 to 12 percent slopes
RaA	Rains fine sandy loam, 0 to 2 percent slopes
RaB	Rains fine sandy loam, 2 to 5 percent slopes
RaC	Rains fine sandy loam, 5 to 8 percent slopes
RbA	Red Bay fine sandy loam, 0 to 2 percent slopes
RbB	Red Bay fine sandy loam, 2 to 5 percent slopes
Re	Riverwash
Rr	Robertsdale loam
RuA	Ruston fine sandy loam, 0 to 2 percent slopes
RuB	Ruston fine sandy loam, 2 to 5 percent slopes
RuB2	Ruston fine sandy loam, 2 to 5 percent slopes, eroded
RuC	Ruston fine sandy loam, 5 to 8 percent slopes
RuC2	Ruston fine sandy loam, 5 to 8 percent slopes, eroded
RuD	Ruston fine sandy loam, 8 to 12 percent slopes
Sa	Sandy alluvial land
SbA	Savannah very fine sandy loam, 0 to 2 percent slopes
ScA	Scranton loamy fine sand, 0 to 2 percent slopes
ScB	Scranton loamy fine sand, 2 to 5 percent slopes
SsB	St. Lucie sand, 0 to 5 percent slopes
St	St. Lucie-Leon-Muck complex
SuB2	Sunsweet fine sandy loam, 2 to 5 percent slopes, eroded
SuC2	Sunsweet fine sandy loam, 5 to 8 percent slopes, eroded
SuD2	Sunsweet fine sandy loam, 8 to 17 percent slopes, eroded
Sw	Swamp
Td	Tidal marsh
TfA	Tifton very fine sandy loam, 0 to 2 percent slopes
TfB	Tifton very fine sandy loam, 2 to 5 percent slopes
TfB2	Tifton very fine sandy loam, 2 to 5 percent slopes, eroded
TfC	Tifton very fine sandy loam, 5 to 8 percent slopes
TfC2	Tifton very fine sandy loam, 5 to 8 percent slopes, eroded
WaA	Wahee silt loam, 0 to 2 percent slopes
WaB	Wahee silt loam, 2 to 5 percent slopes
Wc	Wet clayey alluvial land
Wm	Wet loamy alluvial land

CONVENTIONAL SIGNS

WORKS AND STRUCTURES

Highways and roads
- Dual
- Good motor
- Poor motor
- Trail

Highway markers
- National Interstate
- U. S.
- State

Railroads
- Single track
- Multiple track
- Abandoned

Bridges and crossings
- Road
- Trail, foot
- Railroad
- Ferries
- Ford
- Grade
- R. R. over
- R. R. under
- Tunnel

Buildings
- School
- Church
- Station

Mines and Quarries
Mine dump
Pits, gravel or other
Power lines
Pipe lines
Cemeteries
Dams
Levees
Cotton gin
Sawmill
Forest fire or lookout station

BOUNDARIES

- National or state
- County
- Township, U. S.
- Section line, corner
- Reservation
- Land grant

DRAINAGE

Streams
- Perennial
- Intermittent, unclass.

Canals and ditches — CANAL, DITCH

Lakes and ponds
- Perennial
- Intermittent

Wells — flowing
Springs
Marsh
Wet spot
Flume

RELIEF

Escarpments
- Bedrock
- Other

Prominent peaks

Depressions — Large, Small
- Crossable with tillage implements
- Not crossable with tillage implements
- Contains water most of the time

SOIL SURVEY DATA

- Soil boundary and symbol — Dx
- Gravel
- Stones
- Rock outcrops
- Chert fragments
- Clay spot
- Sand spot
- Gumbo or scabby spot
- Made land
- Severely eroded spot
- Blowout, wind erosion
- Gullies
- Indian mound

Soil map constructed 1963 by Cartographic Division, Soil Conservation Service, USDA, from 1955 aerial photographs. Controlled mosaic based on Alabama plane coordinate system, west zone, transverse Mercator projection. 1927 North American datum.